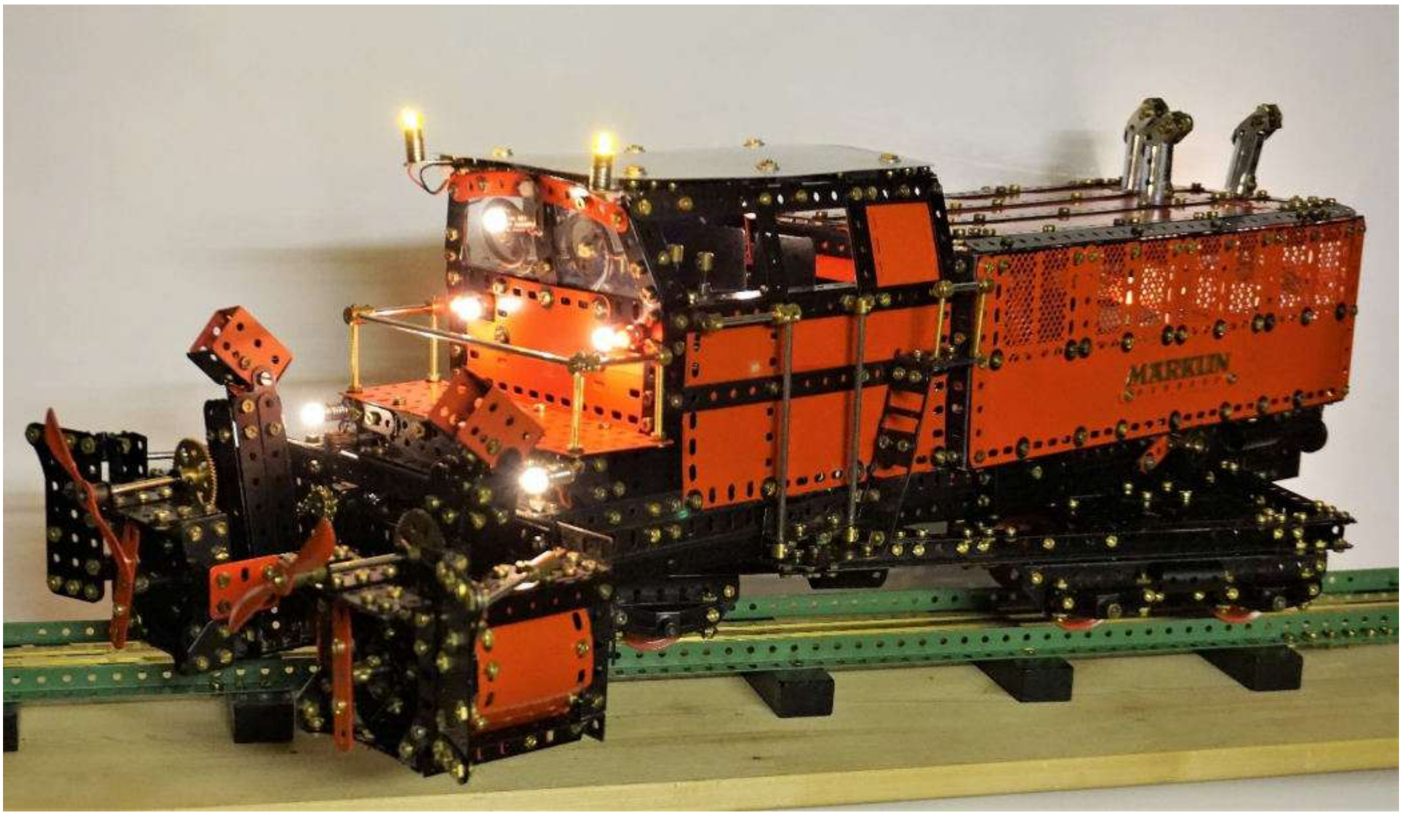
Schrauber & Sammler

Magazin für die Freunde des Metallbaukastens.

Ich schraube, also bin ich. Nr. 23 Sommer 2022



In this edition

next meeting of
Circle of Friends metal kit:

The annual meeting takes place again in
Bebra, in the Hotel Sonnenblick.

www.sonnenblick.de

The date is Oct 13-16, 2022.

Further information is available from Andreas Köppe at:
Thale_Schrauber@web.de

A few words about this issue.

Dear readers, dear screwdrivers and collectors, dear friends of metal construction sets,

You've just got the latest issue of our magazine for friends of metal construction sets on your screen. It is the 23rd edition and it is 42 pages long.

The magazine willstill free and otherwise distributed as a pdf document. If you still want to reward the effort, you can send me the equivalent of a cup of coffee via Paypal. My paypal account is my email address which is below.

And what's currently in it?

Apart from the traditional look into a drawer from Urs' collection of exotic specimens, "only" four models are described in this issue. But what kind! And even from four different systems!

It starts with a railway snow blower from Märklin and Meccano. The visitors in Bebra 2021 and the readers of the report about it (Schrauber &Collector 21, Winter 2021) know the model. After reading this further, detailed article, you know it very well and know about the intricacies of a vehicle that is unknown to most train drivers.

Urs Flammer presents a metal construction kit that already has its strange connection technology in its name: Splintofix. But the manufacturer could not do without threads entirely. A short-lived but interesting product of the post-WWII adversity.

Visitors to various annual meetings of the Friends of Metal Building Kits are familiar with the giant truck-mounted crane model from Eitech, which is based on a giant truck-mounted crane. Here is a report on the state of construction of the crane today with some valuable information about the prototype.

Can you also build models with metal construction kits that are neither cranes nor vehicles? The proof is provided here with a vertical lathe from Walthers Stabil. Although this model doesn't turn huge pieces of cast iron or steel like the original, it does demonstrate its functionality on a block of wax. And here, just like in real life: After using the lathe, you have to clean it up.

And as a fourth model, a Unimog will be presented. A Unimog is originally a *University*capital*Mon*gate- *G* erät, that is a motor with gearbox, four wheels and some sheet metal cladding. And that's exactly what this model is: A drive with four wheels, power take-offs and many nice gimmicks that you only discover when you read the report and look at the extremely successful model.

There follows a reference to a model exhibition by Urs Flammer in the local museum of his place of residence.

And now here are my usual final remarks of thanks and requests:

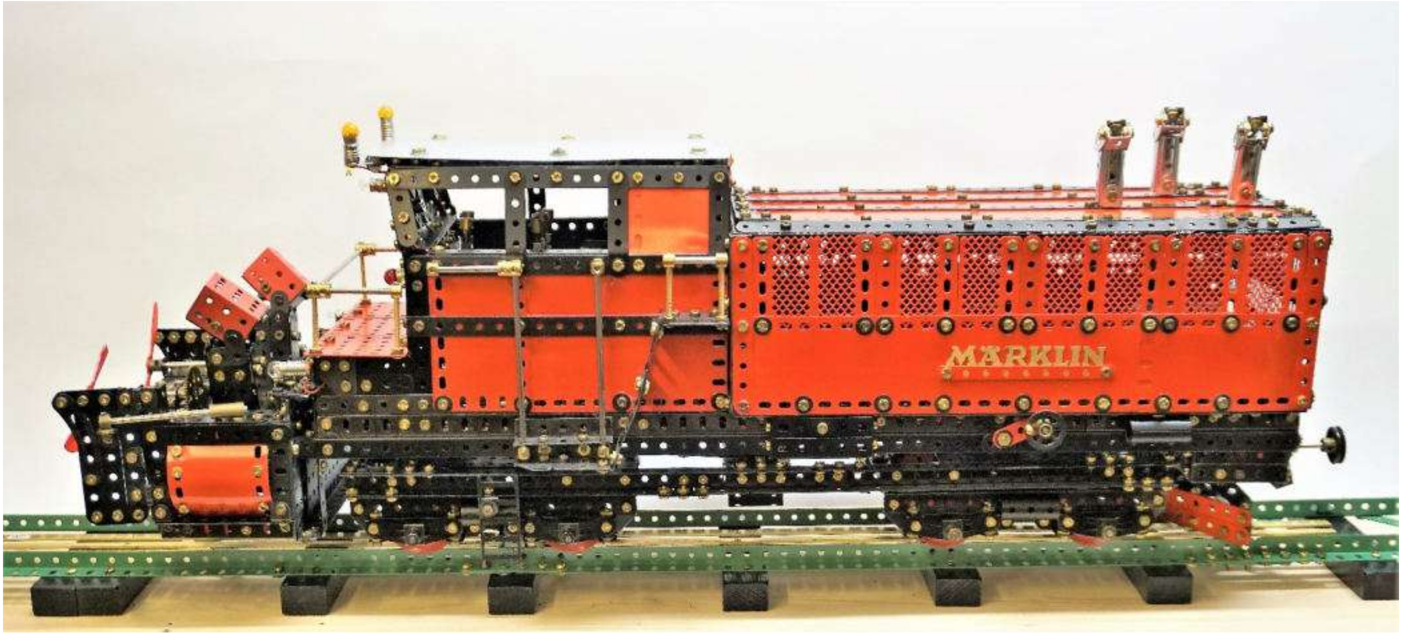
I would like to thank everyone who contributed a report or suggestions to this. Special thanks to Gert Udtke, who reliably detects spelling mistakes and other linguistic inadequacies.

Our magazine can only continue to exist if we receive many reports on various modular systems, models, handicraft tips and historical facts.
So please write and take pictures and help us.

Your
George Eiermann

I can be reached via email: georg.eiermann@gmail.com
ViSdP: George Eiermann

General information: This edition and all older ones have only appeared as pdf documents and can be downloaded to your own computer at any time from the following Internet addresses: www.nzmeccano.com/image-110519 or: www.meccanoindex.co.uk/SundS/ or: www.club-amis-meccano.org/magazines-meccano/magazines-autres-origines The latest issue is always at the top.



Power pack: DB railway snow blower 716.0 from Beilhack as a Märklin model

Make way with snow blower 716.0

By Gert Udtke (text and photos, unless otherwise noted)

The promotional video

Strong headlights of a roaring train light up the tunnel, observe at the driver's desk

Photo 1 Full of electronics: the driver's cab with the driver's desk, photo Aebi Schmidt Group

Photo 2 In winter clearing work: HB 1600S from Beilhack, photo Aebi Schmidt Group

two men rails and switchboard (*Image 1*), the wind whistles and hisses – suddenly the camera perspective changes to the tunnel exit, the railway snowblower shoots out into the mountain landscape to triumphant music and throws the snow from the tracks in a high arc onto the snow-covered meadows to the right and left. An impressive promotional video. (*picture 2*)

The enterprise

The Beilhack company from Rosenheim, founded in 1857, develops and builds such high-performance track centrifuges. It has belonged to the Aebi Schmidt Group in Switzerland since 2007. With those scenes, the group advertises its special clearing vehicles.

Image 3 DB snow blower 716.001 in Fulda 2021, photo: Gerd Hahn

They are so fascinating that I decided to replicate one of the two Deutsche Bahn self-propelled snow blowers from 1994, serial numbers 716.001 and .002. (*picture 3*) Construction and snow blower part (type HB 1600 S) come from Beilhack. The DB factory in Meiningen assembled the vehicle.

On request, Beilhack/Aebi Schmidt provided me with a construction plan for the HB 1600S machine. The article "Schneeschleuder 716.0" with pictures, drawings and dimensions in the book "Bahndienstfahrzeug" by Arend Boldt also helped me. (*picture 5*) It already helped me during the construction of the DB tunnel inspection car good service. (Wrenches & Collectors 17/Winter 2020)

The performance

The two centrifugal engines - two twelve-cylinder diesel engines from Daimler-Benz, each with 605 kW - clear between 10,000 and 16,000 tons of snow per hour, depending on the vehicle design. They hurl the white masses up to 40 meters through two swiveling ejection chutes and clear the track bed over an adjustable width of around 3 to 5.5 meters. A Daimler-Benz drive motor with 605 kW accelerates the 80-ton, 16.5-meter-long special vehicle to speeds of up to 120 kilometers per hour. With a snow depth of 50 cm, it achieves a clearing speed of up to 30 km/h.

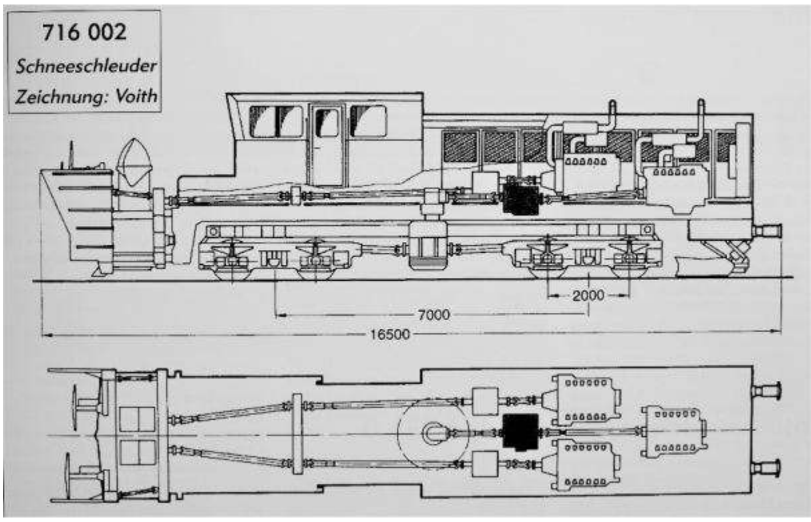


Fig. 5 Drawing of the motors/drives in 716.002 From: Arend Boldt, railway service vehicles

The functions

For my construction on a scale of 1:20 I mainly used black Märklin and some Meccano material. (*picture 4*)

One thing was clear from the start: snow or styrofoam balls or similar material would not be able to throw my model away. But the numerous implement certain functions appealed to me:

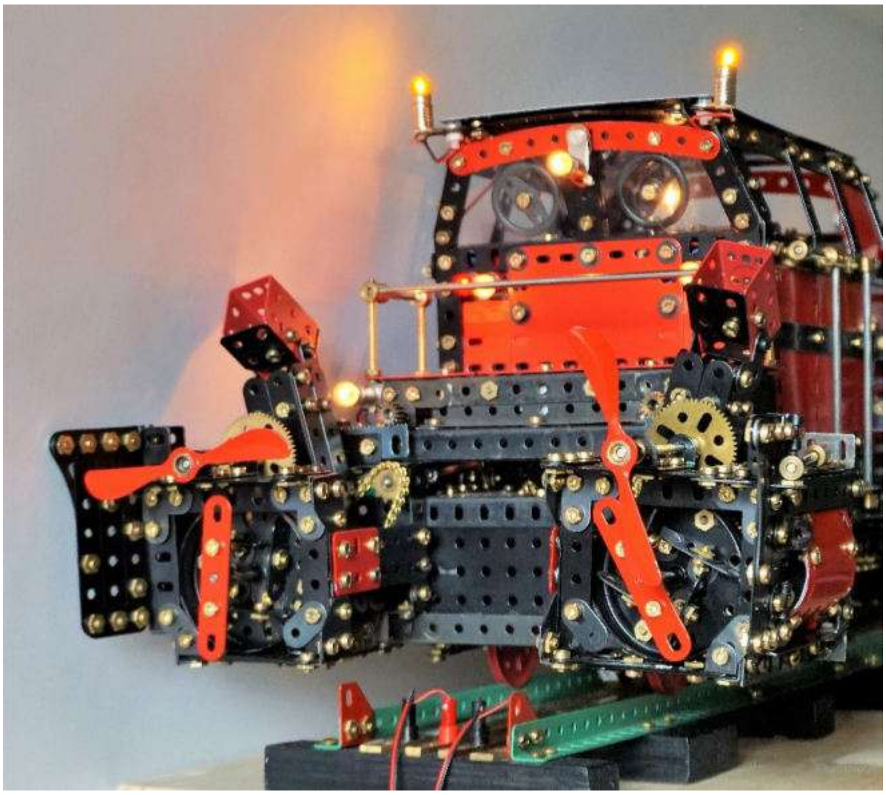


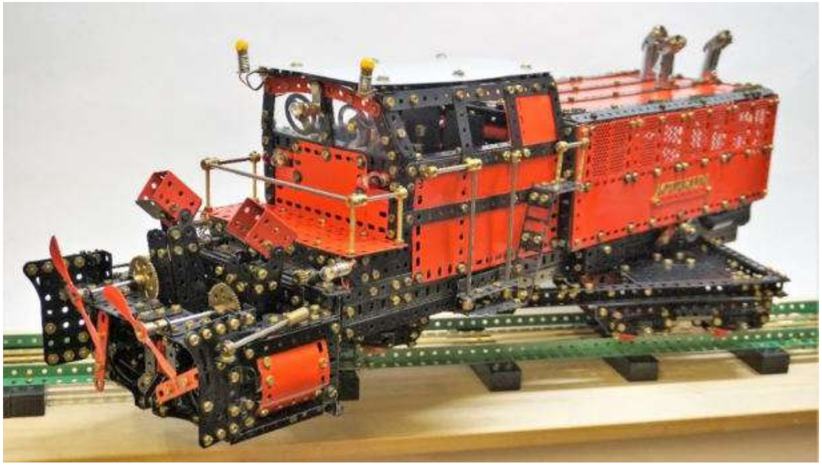
Image 4 Red and black - the vehicle stands out

- driving operation.
- The two front halves at the front of the vehicle can be moved sideways independently of each other to change the clearing width.
- Two separately driven throwing wheels in the stem.
- Four pre-cutting propellers break up harder, pressed snow.
- Two adjustable packer plates attached to the outside of the stem can further increase the clearing width.
- The inclination of two ejection chimneys can be adjusted, as can their tips.
- Under the rear of the machine, a profile plow that can be raised and lowered clears the snow between the rails.
- The entire superstructure can be on the

chassis can be rotated 180 degrees to the direction of travel (*picture 6*), so that the snow blower can be moved into the

can drive and clear in the opposite direction. All that is required is a crossing option onto the opposite track.

- There are also headlights, taillights, warning lights, interior lighting in the driver's cab and the engine room. (*Picture 6a*)



Picture 6 The superstructure can rotate 180 degrees on the chassis

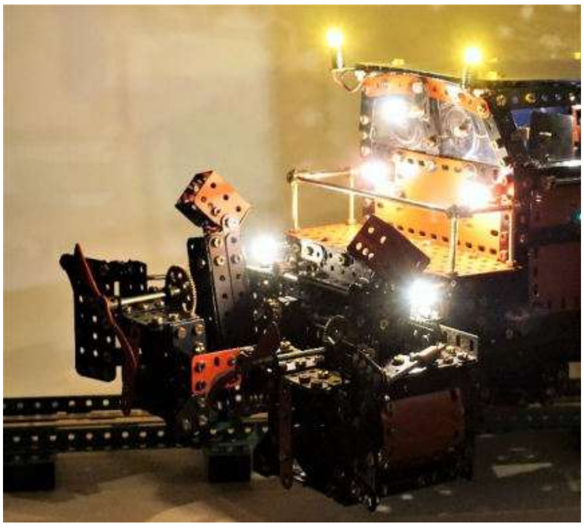


Image 6a Let there be light – outside and inside

The chassis with slewing ring

Fig. 7 "Lazy Susan" turntable, side view

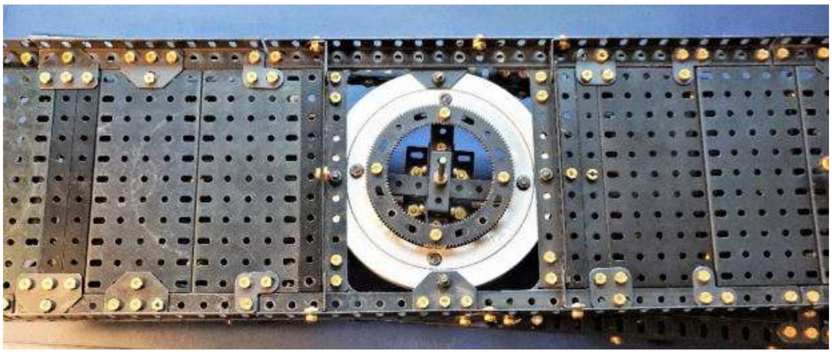


Fig. 8 "Lazy Susan" turntable, top view

The flat, stable vehicle frame rests on two each with two-axle bogies with the red Märklin cord wheels 10350. A turntable from China called "Lazy Susan" is mounted in the middle. (*Picture 7 and 8*) The hole spacing fits exactly to the half-inch system. The inner ring (9-hole diameter) is bolted to the chassis together with a Meccano inner ring gear, the ball-bearing outer ring (11-hole diameter) carries the superstructure. A small, motor-driven pinion runs along the inside of the tightly screwed toothed ring and thus turns the upper part on the chassis.

The drive

A motor-driven shaft runs through the free space in the middle of the turntable via two bevel gears

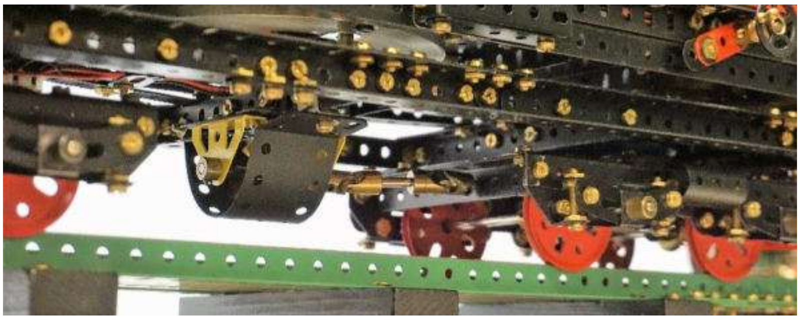


Figure 9 Drive train through the turntable to the rear bogie

der, two pinions and crown wheels/pinions on the two axles of the rear bogie. (*picture 9*) It can move laterally thanks to ball joints. (*picture 10*) Four brass sliders (from loose-leaf binders) are attached under the front bogie. On the track, they tap the power for motors and lights from brass rails. Optionally there are four sockets on the car body for power consumption via cable.

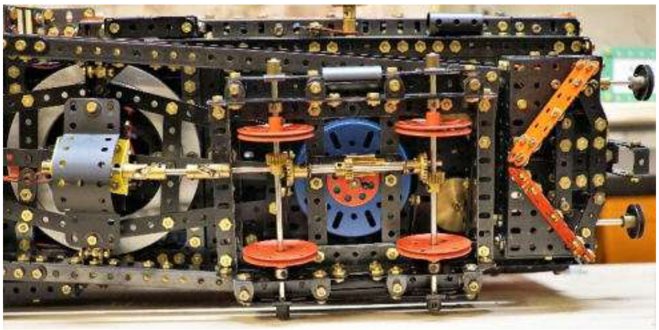
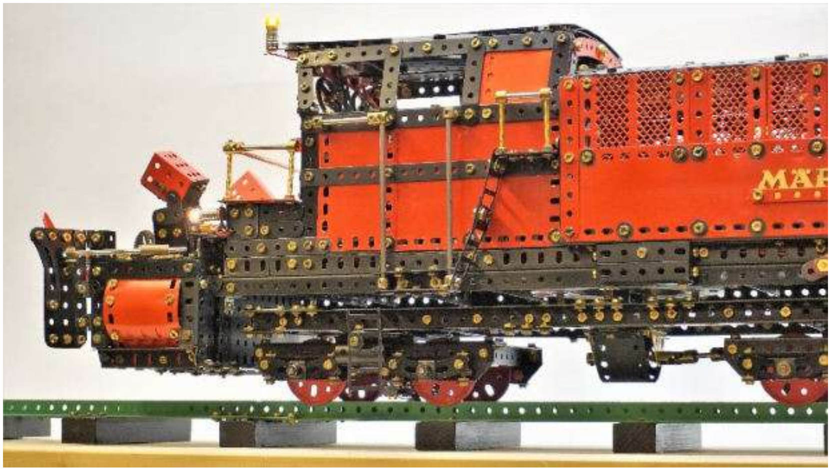


Figure 10 Driving ahead: Power transmission via two bevel gears, two pinions and two crown wheels/pinions each on two axles

The superstructure

The platform of the superstructure has two Märklin motors 1072 at the rear for driving the two throwing wheels and a Märklin motor 1022 for driving. The front half consists of the cab and the massive front end with the snow blowers



directions. (*picture 11*)

Fig. 11 Driver's cab and porch with ejection chimneys

In order to keep the superstructure exactly balanced so that it does not get caught on the chassis when turning, further counterweights are attached at the rear next to the heavy engines. This results in the high total weight of around 16 kg with a length of 84 cm.

Driving the throwing wheels and propellers

The stem with the centrifugal units is divided into two mirror-inverted halves. Each half features a throwing wheel, two rotating cutting knives of different sizes and rotation speeds, and a moving ejection chute. (*picture 12*) The power of the two engines 1072 is about two long waves forward to the two throwing wheels. (*picture 13*)

Image 12 The stem halves are pushed apart via the pinion and rack

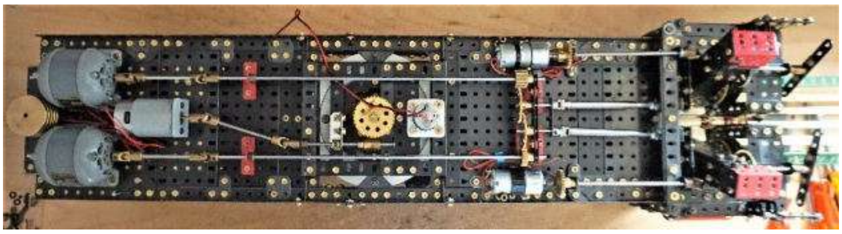


Photo 13 Long shafts and telescopic shafts (right) lead from the motors to the stem. The Metallus engine (centre back) I later exchanged it for a Märklin 1022 motor.

These are constructed from two black round plates and four blades each made from 3-hole flat strips. The two cutting propellers are connected to them via two large gear wheels. They spin a little slower than the throwing wheels. Each with a pinion, which engages in a rack, and each with a slow-running motor, the two halves of the stem can be moved sideways independently of each other, just like in the original.

(*Pictures 14a,b,c,d,e,f*)

The problem: If the stem halves are moved from the inside to the outside, in the model by around six centimetres, the drive shaft for the throwing wheel and cutting blade must also become longer or shorter when it returns to the starting position.

The solution is a telescopic shaft that can be shifted in length. (*Pictures 13 and 15*)

The esteemed Swiss metal construction kit company Stokys offers such brass parts in different lengths at a reasonable price - but with shipping costs to the EU of 50 euros! That's why I switched to the sliding telescopic shafts including cardan joints (therefore more expensive) made of stainless steel with a 4 mm bore from Thicon Models. They allow a length compensation of 30 mm.

Photo 14 a The original snow blower rotates on its chassis with the front of the snow blower closed, picture Aebi Schmidt Group

Photo 14 d Front end halves, fully extended with rake plates on the outside left and right, two impellers and four cutting propellers, photo Aebi Schmidt Group

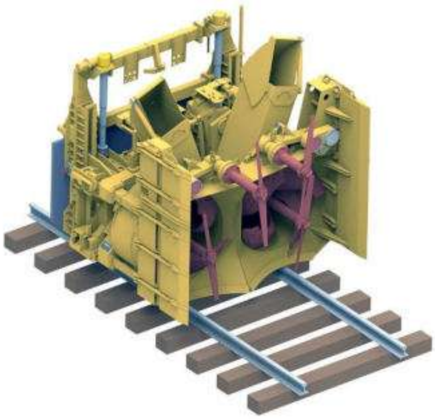


Fig. 14b CAD construction of the front end (closed), picture Aebi Schmidt Group

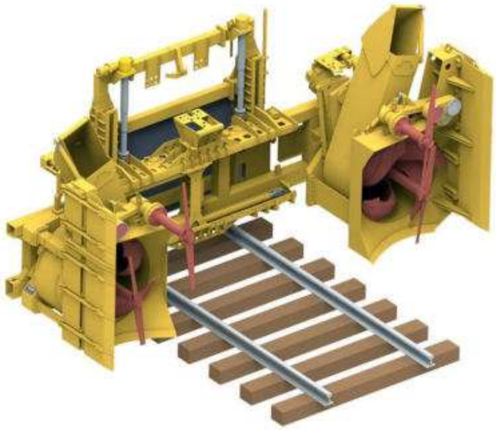


Figure 14e CAD construction of the front end (open), image of the Aebi Schmidt Group

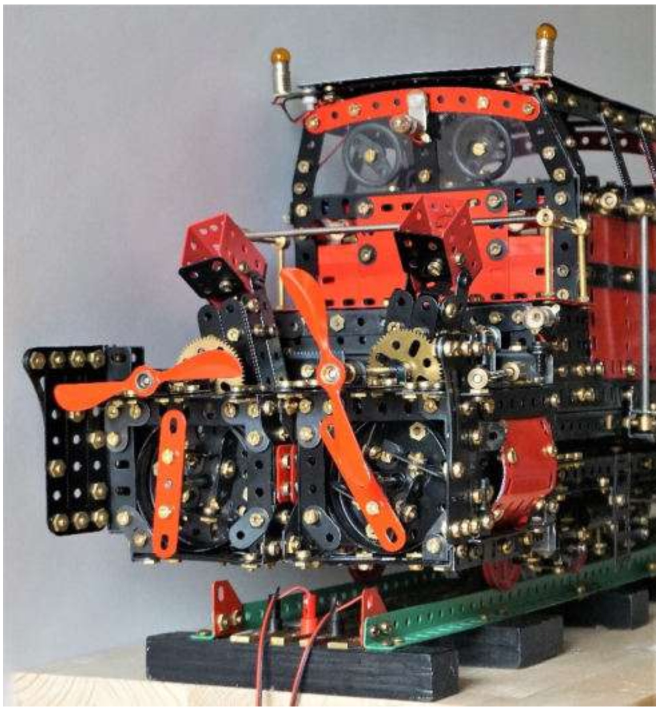
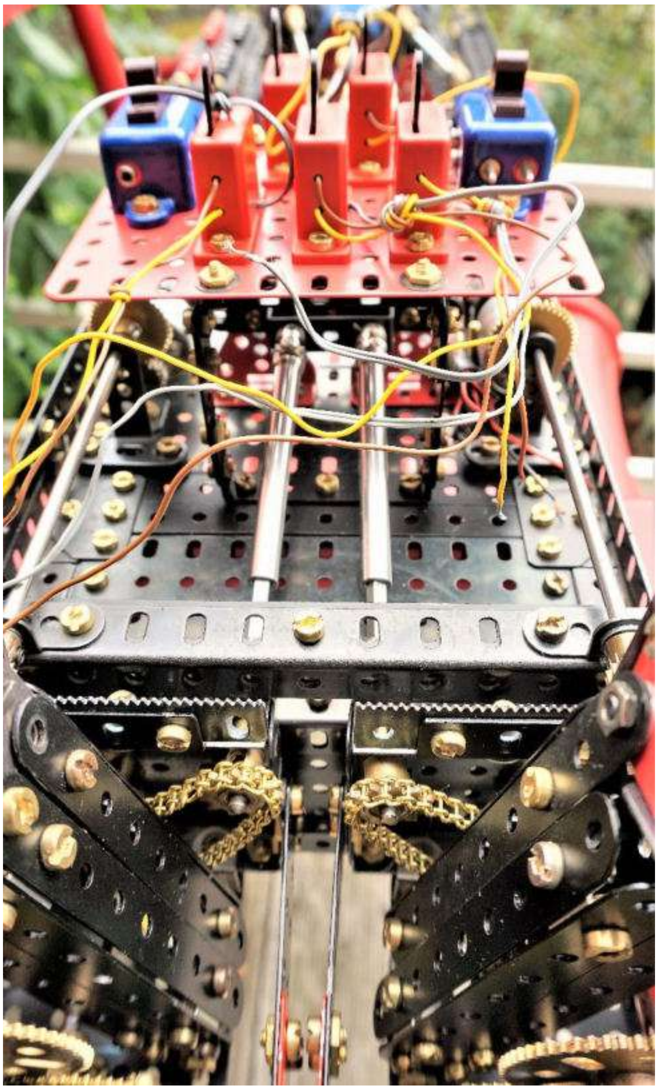


Figure 14 c Stem in the model (closed)

Fig. 14 f Stem in model (fully extended, with rotating throwing wheels and cutting propellers) Fig. Georg Eiermann



Picture 15 Two telescopic shafts (centre) lead to the chain and gear drive in the centrifugal stem

The profile snow plow

A profile snow plow is mounted under the rear. A slowly rotating motor raises and lowers the ploughshare via a cam 11787. (*Pictures 16a, b and c*)

Photo 16a The original plow clears the snow between the rails Photo Aebi Schmidt Group

Fig. 16b The profile ploughshare under the rear (raised)

Fig. 16b The profile plow in the model (lowered)

The driving cabin

In the driver's cab there are two blue switches for the two Märklin motors 1072 and five red switches for a Märklin motor 1022 and four slow-running motors. (*Pictures 17a and b*)

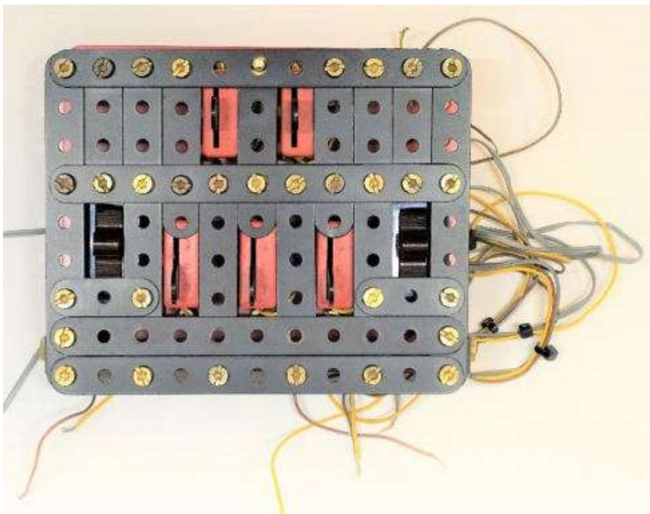


Fig. 17a The control panel for the driver's cab with the switches for seven engines

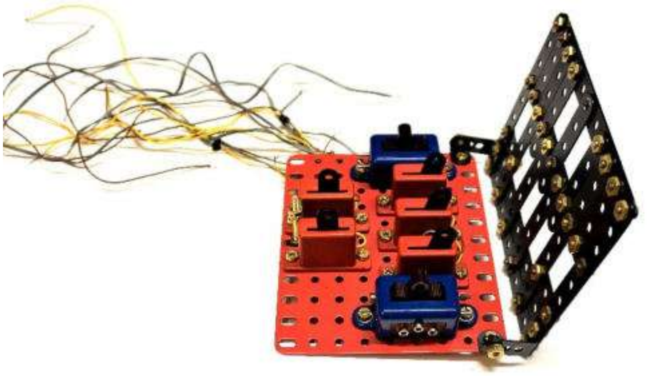


Fig. 17b The cover of the control panel can be opened for repairs

There are six toggle switches for the lights (headlights, yellow alarm lights, red taillights). The roof is easily removable so that the switches are easy to operate from above. (*Picture 17c*)

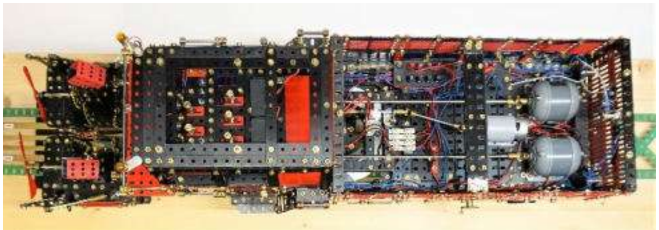


Figure 17c View of the engine room with electrics and cabling as well as the driver's cabin (left) with seven engine and six light switches

As with my tunnel inspection vehicle, the electrical system is a bit messy, but it works. It would be good if nothing failed - because the (already experienced) troubleshooting (*Picture 18*) is lengthy and annoying.

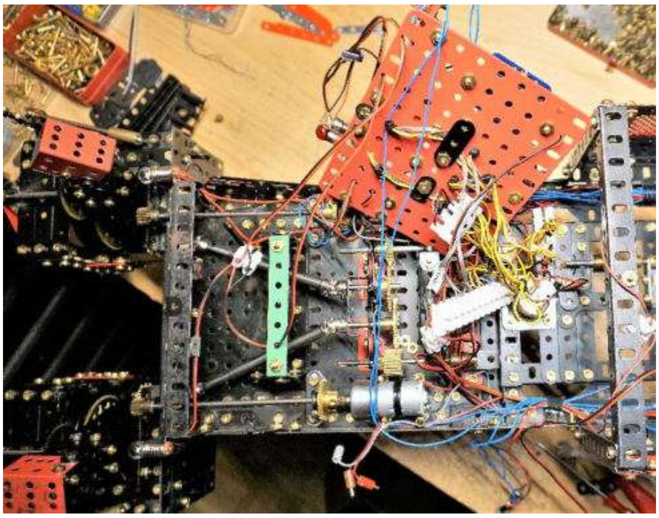


Figure 18 Troubleshooting - some motors suddenly stop running

The body

Like the DB model, the body is bright red in color, the chassis and other structuring components are black. (*Pictures 19 and 20*)

Photo 19 In the middle of the machine house you can see a handwheel with a lever that secures the upper part against unintentional turning on the chassis

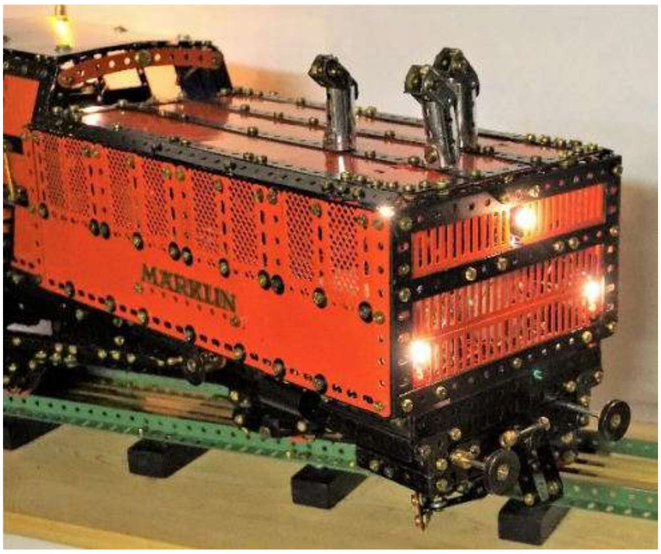
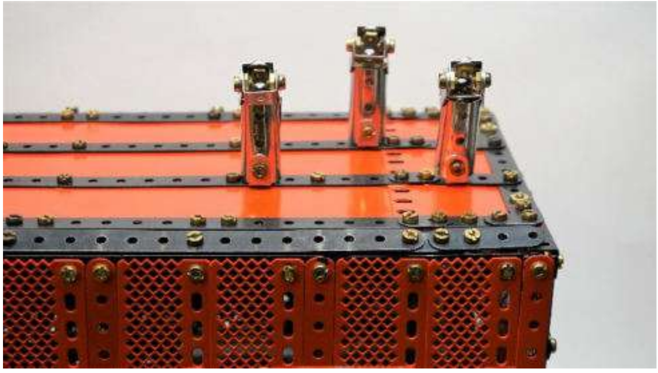


Image 20 View of the barred rear end with headlights and reflectors

I sanded the blue cladding panels from Märklin and sprayed them with red paint from a spray can. Three exhaust pipes, composed of shiny silver Meccano parts, protrude from the roof. (*picture 21*)

The DB high-performance snow blower 760.0 was at the 20th Mechanics Meeting in Bebra 2021 together with the previous exhibit DB-
Tunnel inspection car 711.001 from 2020 can be seen. (*picture 22*)



Picture 21 Three exhaust pipes for (in the original) three diesel engines

delivery addresses

turntable
https://www.ebay.de/itm/353643516832

universal joint
https://thicon-models.com/catalog/search?do=kardankupplung

Telescopic axles to the cardan shaft https://www.stokys.ch/de-ch/shop-(1)/einzelteile/ketteantriebe-kupplungen-antriebszubehor/telescopic-axles-to-the-joint-shaft/

Literature/Photos

- Arend Boldt, railway service vehicles - technology and tasks of the series 701 to 740, Lokrundschau-Verlag 1997 and 2009
- https://de.wikipedia.org/wiki/DB-Series_716
- Photos of the DB high-performance catapult 716 001 and -002 on the Internet
-

videos

Two company videos by Beilhack/Aebi Schmidt about the construction (in time lapse) and the winter use of the snow blower:

- https://youtu.be/cQYerfVlNqI
- https://youtu.be/idJP24zuAds

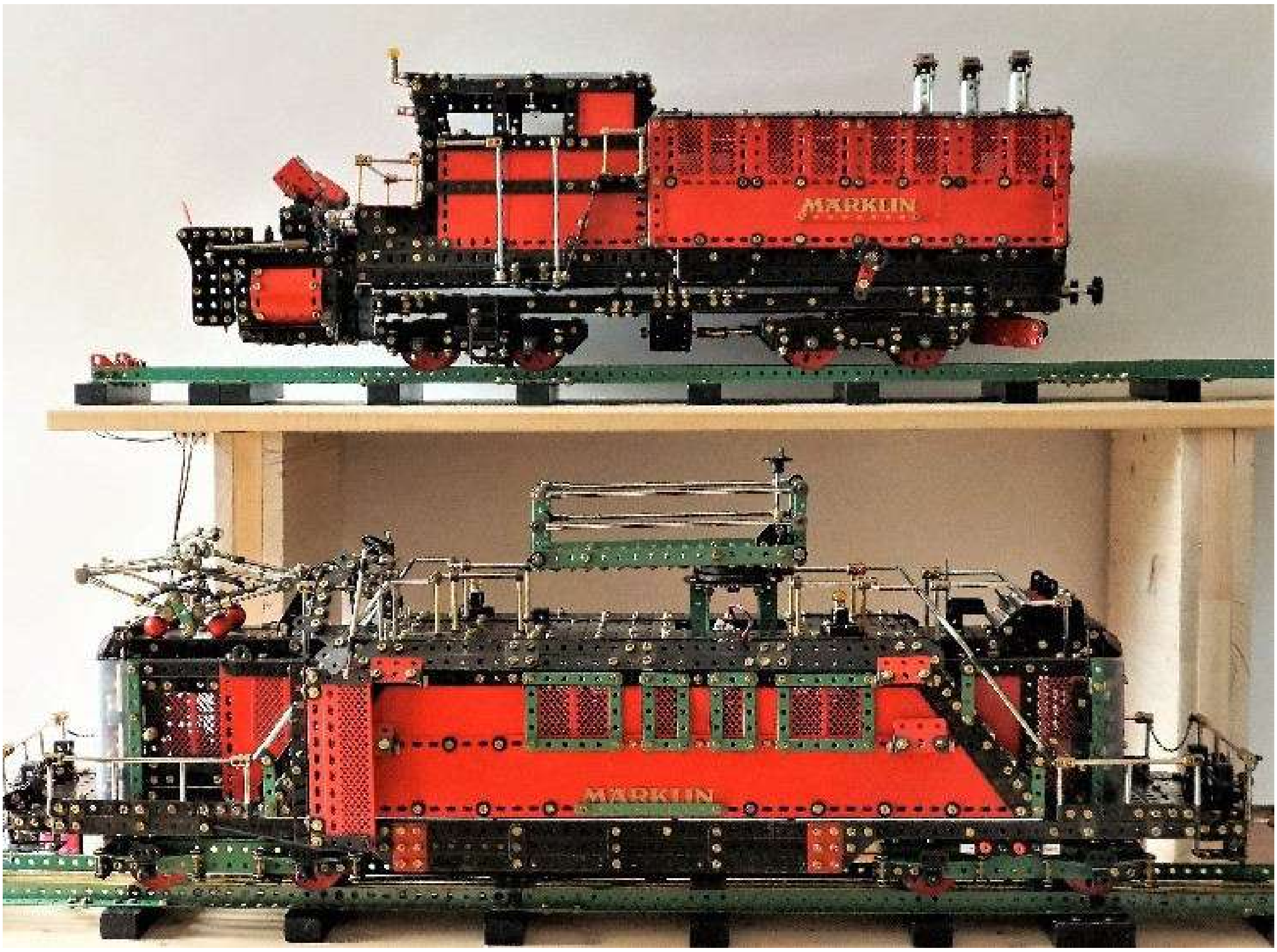


Photo 22 Double pack in Bebra 2021: snow blower and tunnel inspection car

From Urs Flammer's exotic drawer: Splintofix

This unusual and really exotic metal construction kit comes from the year 1948 from the region around Halle an der Saale in Saxony-Anhalt, then a Soviet-occupied zone, later East Germany. The manufacturer may have been a Bieler company from Halle - this is still an open field for further research.

The print code of the double-sided A4 instructions shows a print date of November 1948 and a print run of 2000. A humble product of times of need.

For fans of the building set who cannot read the Sütterlin script: It says under the name Splintofix in the title of the lead image above (cover image of the building set).*metal kit.*The picture comes from the well-known draftsman Will Halle (https://de.wikipedia.org/wiki/Will_Halle).

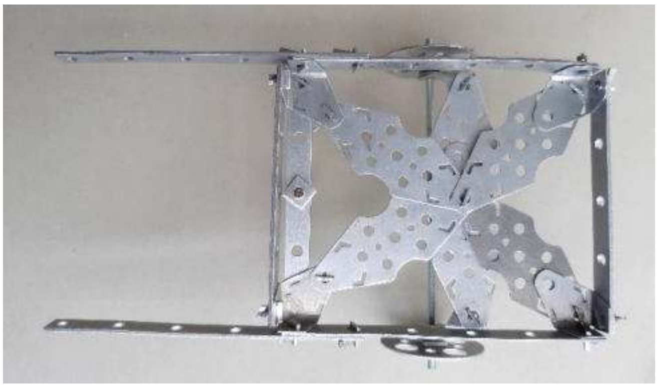
There was only a modest number of components: various lengths of perforated belts, plates and angular elements, round slices (all out aluminum) and threaded shafts. The hole spacing for the perforated tapes is 18 mm, the hole has a diameter of 3.5 mm. However, the parts are not connected with nuts and bolts, but flat fasteners are inserted through the holes and these in turn are secured with wedges. Similar to cotter pins securing a bolt against loss. Hence the name of the kit, presumably.

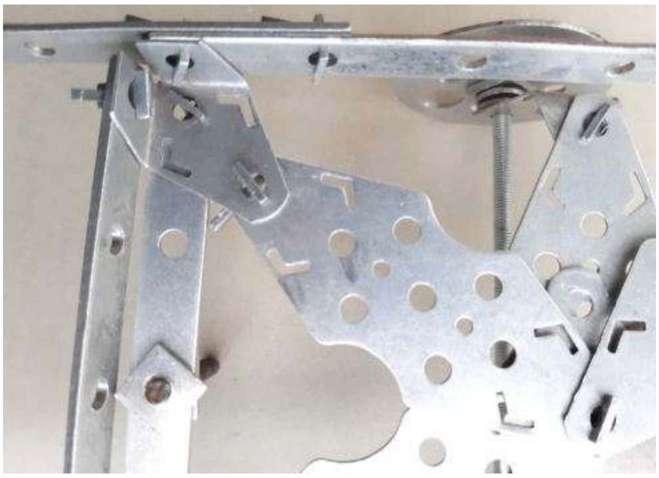
The punched tape was available with 5, 6 and 7 holes. The plates have a roughly diamond-shaped format. See the part in the lead image that the boy on the right is carrying under his arm. The only angle elements are corner pieces bent in three planes. The round perforated discs are placed on shafts with a 3/8" thread and secured with washers and square nuts. This means that all but the very few parts are stamped and bent shafts and nuts.

The flat fasteners into which the wedges are clamped and wedges, on the other hand, are plentiful.

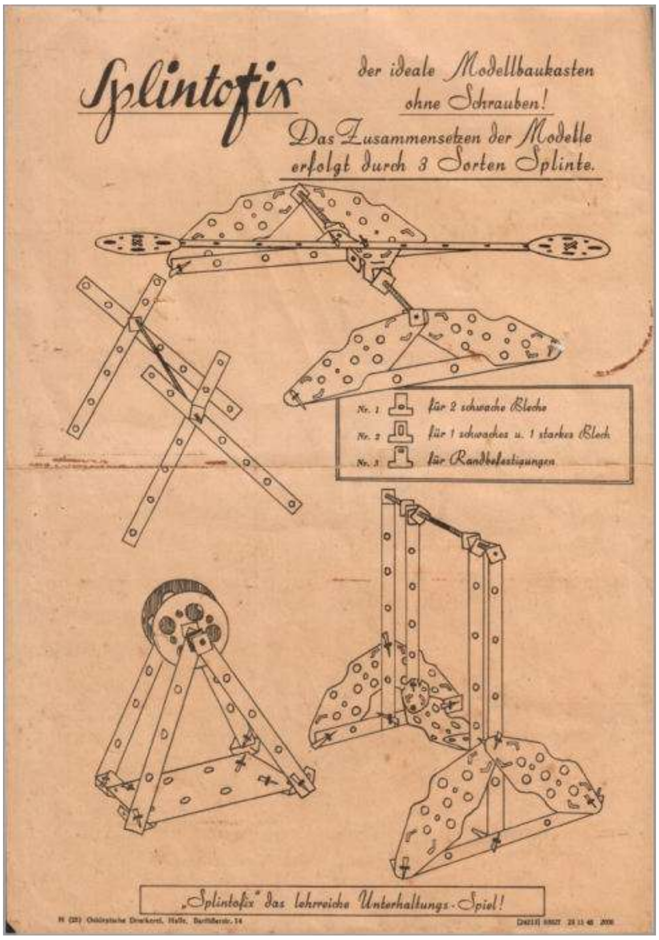
There are also a simple wire crank and a kind of pliers made of aluminum sheet as tools.

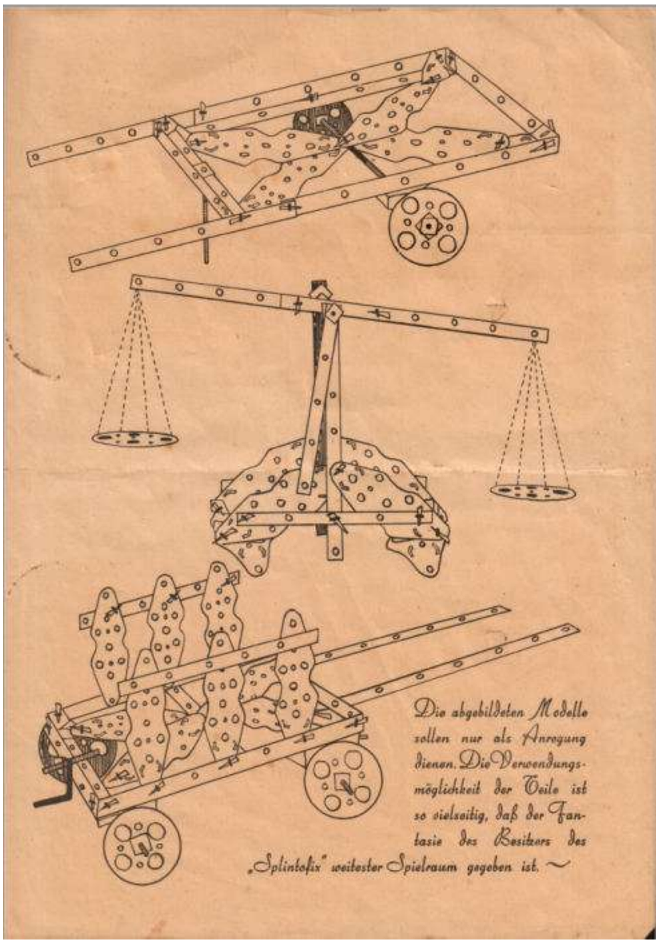
Contents of the kit with construction parts on the left and connecting elements on the right. The plastic box with the wedges is not contemporary.





Simple handcart, built according to the instructions, detail





Instructions, front up and back right

Eitech mobile crane of superlatives

The mobile crane in Bebra 2021

By Ulrich Peters (text and photos)

The original crane

My mobile crane is a model of the large AK850-103 mobile crane manufactured in 1982 by the LEO GOTTWALD company in Düsseldorf.

In the years after the Second World War, the Leo Gottwald company made a name for itself with innovative and ever more powerful cranes for various trucking companies and crane rental companies. After two AK680 cranes were manufactured and delivered to Great Britain in the early 1980s, the Munich crane rental company Schmidbauer KG ordered an even more powerful crane. In the summer of 1982, the Munich company was able to take delivery of its new flagship, the AK850-103. The crane was first used on a power station construction site in Ibbenbühren. Various power plant construction sites followed with increasing frequency. Thanks to its enormous lifting capacity, the individual components that the AK850 had to lift could be prefabricated ever larger. However, since the power of the 10-axle model was also subject to limits, it was a good thing that the Munich crane rental company was able to take over one of the two AK680s delivered to Great Britain. This crane was equipped with mast sections that could also be attached to the AK850. These adopted mast parts were used as counter-jibs. It was now possible to use suspended ballast weighing up to 500 t, thereby achieving a significant increase in load capacity. The additional mast parts now also allow an increase in the achievable lifting heights. Unfortunately, its enormous lifting capacity went hand in hand with a not inconsiderable weight problem. In compliance with the permissible road load capacities, the heavy hoist winches had to be removed regularly in order to obtain permission to drive on public roads. This time-consuming procedure led to the idea of lightening the crane.

The payloads could also be increased. From this time on, the rear part of the superstructure, including the cable winch and the A-frame located here, was transported separately on a low-loader.

In the years that followed, the crane had numerous spectacular jobs in Germany and neighboring countries.

August 14, 2007 was a sad day for all friends of this extraordinary crane. The Munich crane rental company Schmidbauer had decided to sell its former flagship. On that day, the crane rolled onto a ro-ro ship with its train in Bremerhaven and reached Melbourne in Australia after a six-week sea voyage. The new crane operator used the crane on a number of bridge and wind power construction sites, among other things, before it was sold on. Its last station, which has now lasted ten years, took the crane to India in the early 2010s. The local crane operator used it, among other things, on a petrochemical construction site. Some crane components and assemblies were damaged, probably due to untrained handling during assembly and disassembly.

I was lucky and was able to watch the crane shortly before it left Germany during a crane operation in the port of Nuremberg and get very close to it.

Technical data of the AK 850

main boom:	83.75m
luffing tip:	95.00 m
Derrick:	43.00 m
Ballast:	206t
suspended ballast:	500t
Undercarriage engine:	MAN 12 cylinder 520 hp
Superstructure engine:	MAN 6 cylinder 272 hp
support base:	14.7 x 14.7 m^2
undercarriage length:	22.88m

My model - the beginnings

I got my first metal construction set for Christmas around 1970, it was a Sonneberger metal construction set. My first crane model was an attempt to replicate a “Baumeister” type tower crane. However, my material reserves were still very modest, and the aluminum parts also broke quickly due to improper use. In any case, I had to replace the rods in the main mast with replacement material - I used wallpaper strips. But there was also something good about this replacement material. For the next Christmas I got another metal construction kit, but this time a Construction brand kit from the company that later became EITECH from Pfaffschwende.

I then built a gantry crane with my father based on a template. That means he built it overnight and then showed it to me in the morning. But he soon dismantled it again. I was so annoyed by this, but also so spurred on, that I ended up reassembling the crane myself. Goal achieved, my father probably thought to himself.

In my professional life, I then repeatedly got to do with various tower cranes, but also with mobile cranes. My visits to the Leipzig Trade Fair were a real treasure trove, especially as far as technical progress was concerned. If there were mobile cranes in the GDR construction industry that could lift 40 or 50 tons, there were cranes at the fair that could even lift 100 tons and later even 250 tons. I also noticed that the GDR had a few of these big had bought mobile cranes, which could not be found on a normal residential building site.

I took photos at the fair and tried to implement the latest crane with my overall modest means. Every time I came back from Leipzig or otherwise found something about newer and more powerful cranes in the relevant trade magazines, I had the ambition to build the even bigger and more powerful crane. I then dismantled the model I had built several times and started again. In this way, what started out as a 4-axle crane became a 6-axle and 8-axle crane.

In 1982 I found a small article in a construction magazine about what was then the largest truck-mounted crane in the world, the said AK850 from the Gottwald company in Düsseldorf. Unfortunately, the report contained only a very small drawing, which was far too imprecise to take measurements. After I contacted the article writer, he sent me a sales brochure for the crane. Now I had a somewhat more accurate drawing and could at least take the most important proportions. I disassembled everything again and tried to screw this crane to a scale of 1:25. Time passed and I didn't really make any headway. After reunification, I discovered Kibri railway accessories in a model shop. This company had among other things also focused on manufacturing a huge range of commercial vehicles for model railways. Mobile cranes and in particular the large devices from the Gottwald company covered a very wide field. So I bought the model of an AK850, built it and now I finally had all the missing dimensions and details. However, the consequence was that I dismantled the metal construction kit crane again and now screwed again on a scale of 1:20.

The procurement of materials was no longer a problem.

In 1999, the opportunity arose to take part in a construction kit exhibition in Chemnitz. I had the ambition to build my crane by this date so far that I could set it up and present it in the exhibition. A special day was also planned there, to which EITECH was invited. The company representatives were so from my crane that they booked it for the stand presentation at the Nuremberg Toy Fair 2000. I went there and set up my crane. But here at the latest it was noticeable that individual assemblies were too weak and not sufficiently torsion-resistant. In particular, the central crane base, i.e. the part that sits between the front section and the rear section of the vehicle, on which the crane superstructure rotates and to which the four support arms are bolted, was not able to cope with the load. When the crane had been erected, I had to place plates under the crane base and also attach a rope to the stand backdrop. As a result of the successful presentation in Nuremberg, EITECH agreed to manufacture the crane base as a turned part according to my ideas.

I had been working on a concept for several years and had already made a first drawing. So I was able to send this to EITECH as a suggestion, from which the desired turned part was then manufactured. EITECH also had made a suggestion for the installation of a drive for my crane base, which was immediately implemented in the rotary part.

In return, I agreed to also give the crane to the Nuremberg Toy Fair over the next two years. With the contacts to EITECH, I was also able to fill up my material reserves at low cost.

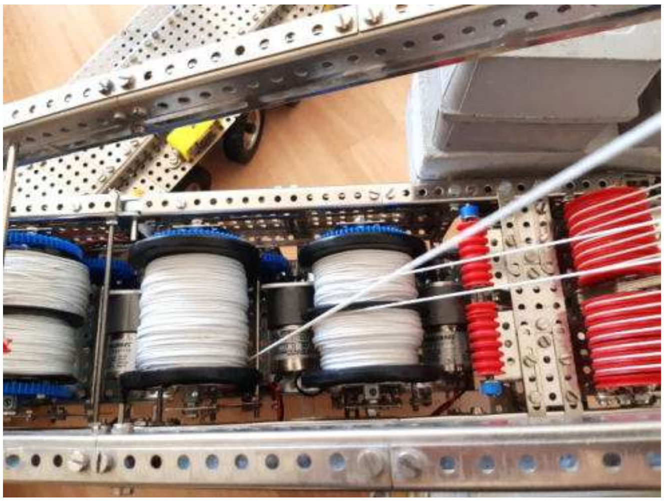
chassis

The chassis consists of a 6-axle drive part, the bolted-on crane base and the bolted-on 4-axle rear part.

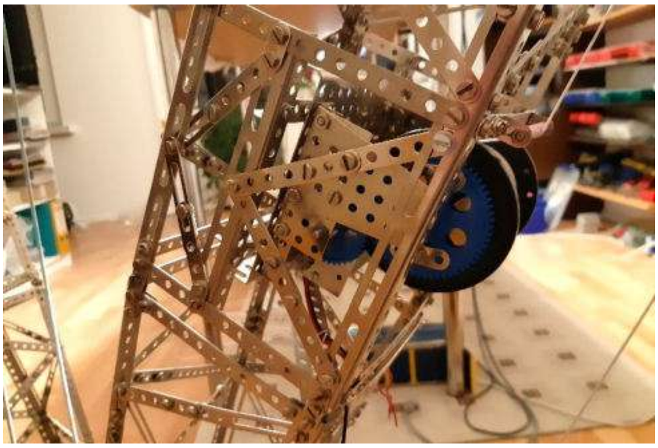
In the early phase of my crane construction, I was content with installing ten rigid axles with a very simple rocker between the adjacent axles on the crane frame. Since the crane is at a fixed location during operation, the wheels are of no importance for crane operation.

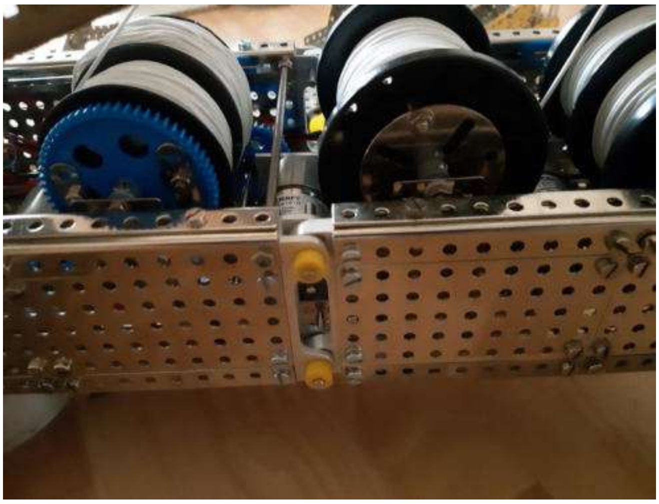
Only with later revisions did I convert the axles so that nine axles can now be steered. But the linkage is still quite simple, I was content here with a parallel linkage.

So far I have not used a servo drive or a travel drive.



The original crane has three hoists in the superstructure. A hoist has a double winch for operating the load hook. The luffing gear is responsible for moving the righting mast and is designed as a double drum performed. Another hoist is used to adjust the luffing jib.





With these three winds, however, not all possible various boom configurations possible. The original crane can therefore only implement the main boom-jib jib or main boom-counterjib configurations. A combination of main boom, counter jib and fly jib is not possible in this way.

When implementing the maximum combination, I was guided by the solution to the winch problem on other large cranes. Here an additional fourth hoist was bolted to the counter-jib. I used this method and was therefore able to display the maximum combination with my crane.

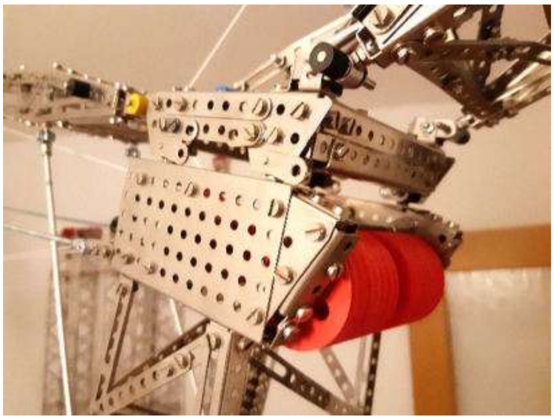
As already described in the introduction, due to the weight problems, modifications were made to the prototype crane in 1998, which I only reproduced on my model in 2012 with regard to the superstructure division. A friend of mine who was a mechanic was kind enough to make me bolt-on pieces based on a drawing because I was afraid that using parts from the metal construction kit would be too unstable.

outrigger screws. As in the original, the main boom is assembled from several mast sections of different lengths. The dimensions of the mast sections are 15 holes in width, 13 holes in height and 30, 60 or 90 holes in length. In addition, a head piece with the roller package and a length of 35 holes and a foot piece with a length of 30 holes are bolted on.

The entire main boom is bolted to a foot linkage, which remains on the superstructure.

For special applications, the crane can be equipped with a maxi-lift device (derrick mast). A platform can be attached to this counterjib, on which additional counterweights can be placed. Thus, the load capacity can be significantly increased in conjunction with the radius. The mast sections intended for this have the same dimensions as on the main boom. This makes it possible to realize a large variety of mast configurations.

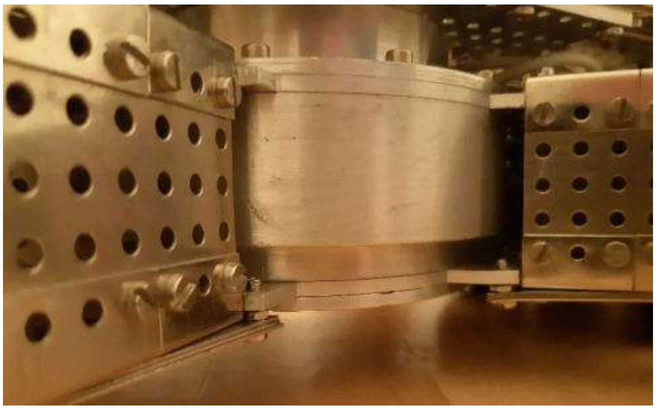
In the early stages of building my crane I had designed the dimensions and especially the bracing of the mast sections based on the availability of the existing bars. With the now larger amount of material it was possible to adjust the dimensions of the different mast parts to the original. I was also able to implement a near-original division of the struts. I had created an Excel table in which I could enter the desired dimensions of the mast parts and read the individual lengths of the desired struts as a result. With this table, truncated pyramid-shaped mast parts and their individual rod lengths were no longer a problem.

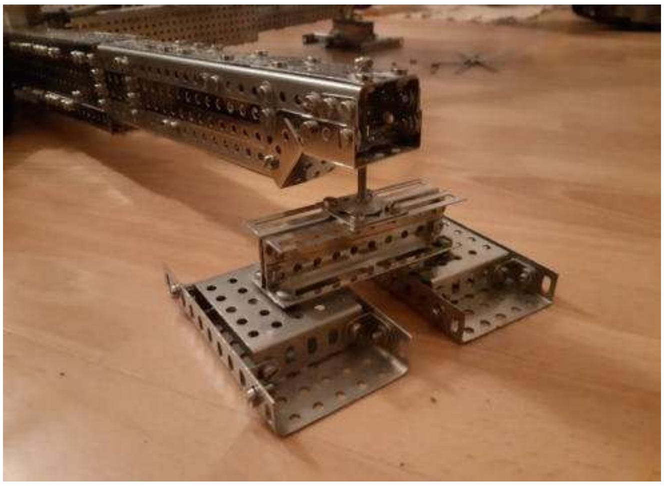


For other special applications, the crane can be equipped with a luffing jib. However, the mast sections intended for this purpose have different dimensions. The mast sections are 12 holes wide and 9 holes high. In order to be able to move the luffing jib, a smaller auxiliary mast is bolted to the base section of the luffing jib and to the head section of the main boom. This allows the boom to be adjusted using cables.

outriggers

The four support arms are attached to the side of the crane base. While the original crane here has hydraulically extendable arm extensions, I've contented myself with just hinting at the arm extensions. The arms are almost always extended. When designing my crane base, I took the possibility of bolting the support arms too lightly. I opted for a construction with two protruding spikes on the support arm. These thorns are hung in holes in the base plate of the crane. Due to the considerable torques when erecting the crane or when maxing out in the maximum mast configuration, bending occurred on this suspension despite reinforcements. I'll have to think of a more stable solution here.



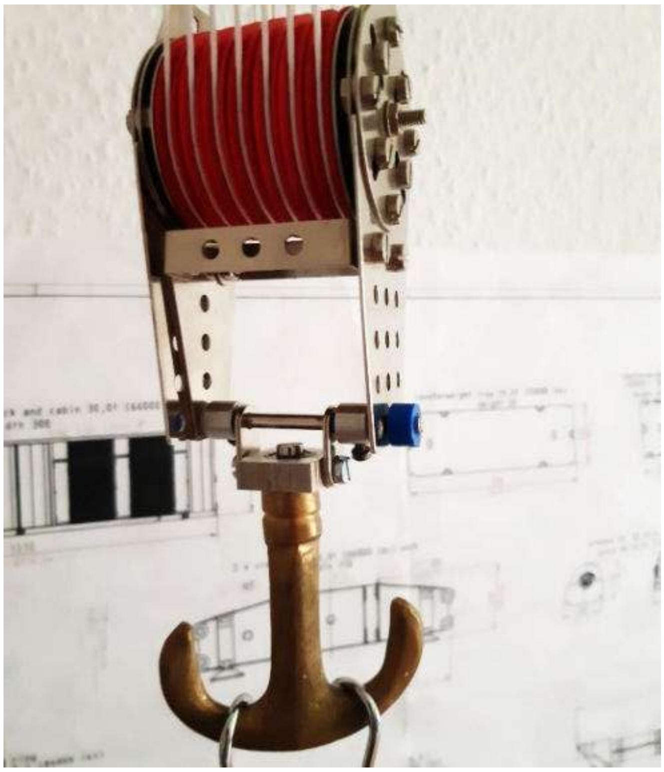


The support arms place the load with a support cylinder via a rocker on two support plates.

When designing the support cylinders, I was content with a spindle solution. This is currently being extended manually to the required level.

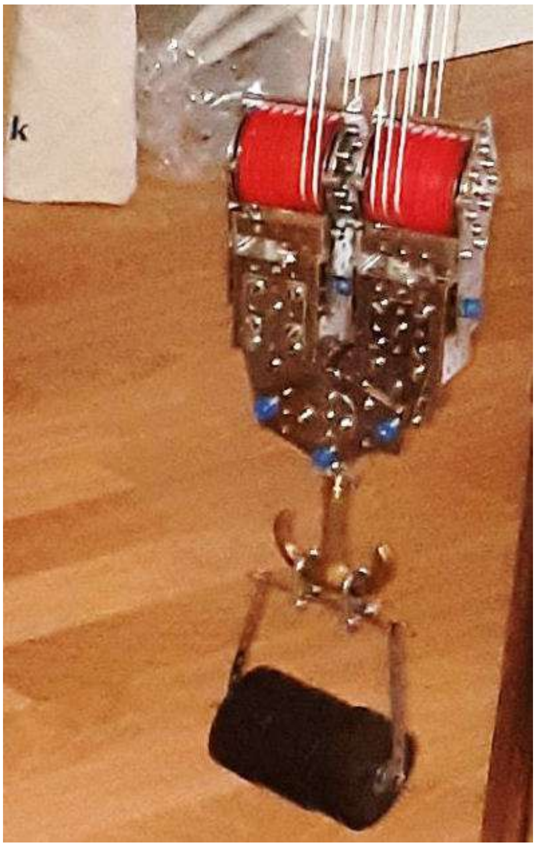
H

f
f
n



However, I only made one single hook for my crane model. I bought the starting piece for the future crane hook in a maritime souvenir shop. A brass bottle opener in the shape of an anchor served well here and could be ground down into the shape of a double hook.

If necessary, I can run the hoist in 2-drum mode to increase the lifting capacity. The two hoist ropes then run over two bottom hook blocks. The two sets of rollers are joined together using a traverse to which the crane hook is attached.

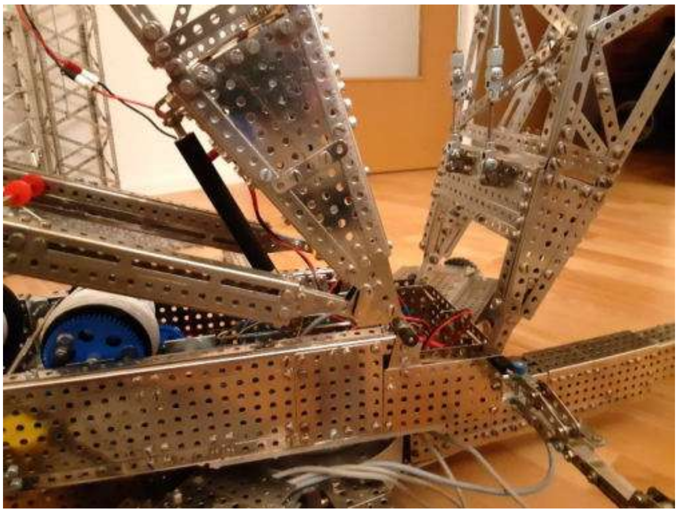


support cylinder

For the last two years I have wanted to find a solution to the problem with a hydraulic support cylinder. This support cylinder is required in particular during the crane assembly phase. It is placed in the crane superstructure and connected to the base of the main boom. Via a temporary rope connection

tion made between the base and the A-frame, the A-frame should be brought into the position that allows the main boom and the counter-jib to be raised.

A support cylinder is required for crane operation and the various functions, which can be actively actuated in both push and pull mode. Another challenge is that the support cylinder has to be equipped with a telescopic cylinder, since the path when extended is about twice as long as when retracted. Since I hadn't come up with a solution using parts from the metal kit and couldn't find a telescopic cylinder on the model building supply market, I procured a simple electric cylinder as a temporary solution.



However, the strongest lifting cylinder from the CTI company is too weak for the forces required, so I use it initially only use it manually as a fallback safety device for the main boom.

counterweights

Counterweight plates made of cast steel are placed in the rear area of the crane superstructure. I made blocks out of concrete here. I used discarded plastic building blocks as formwork. This made straight and sharp edges possible. Additional counterweights can be placed as suspended ballast on the platform attached to the counterjib.

guy rods

Braces must be built in to stabilize the cantilevers. While I was still making rope connections in my early days, in a later revision I made guy rods out of 4mm steel wire in lengths of 40 and 60 cm. The rods mean that knotting or slipping out of the screw connection is no longer possible. I screwed a fork head and a suitable counterpart to each rod so that I can put the guy rods together to the required total length. the

I discovered fork heads at MBO Osswald, Külsheim.

control panel

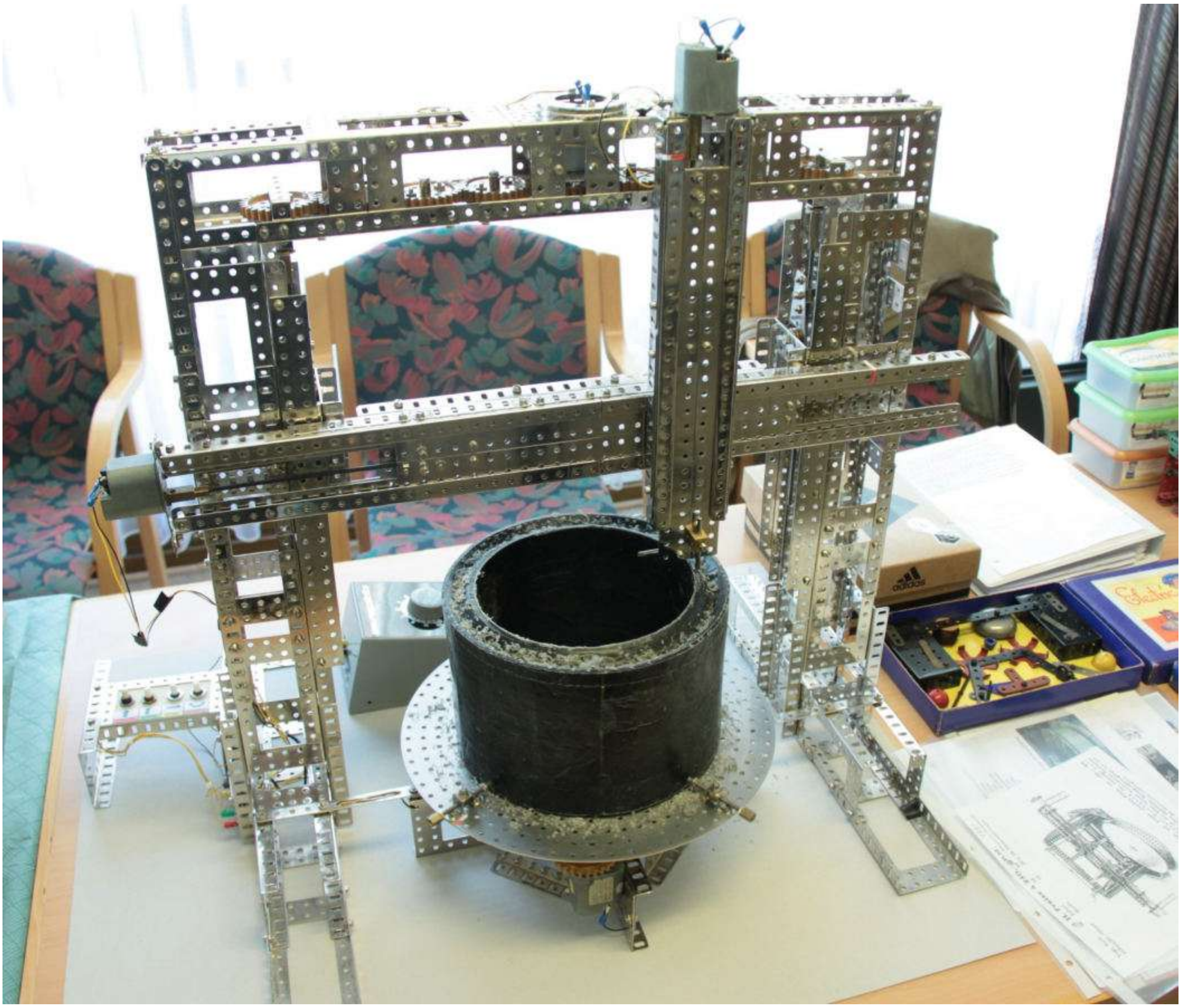
I built a control panel to operate my crane. I have installed four speed controllers in this console, which can work steplessly and without a switch in both directions of rotation. With the controllers I can operate the first hoist, the luffing gear, the winch for the luffing jib and the winch for the main boom adjustment. The second hoist is operated alternately with the winch for the luffing jib. I bought a microprocessor-controlled driver's desk from the model railway company CONRAD as a speed controller. I used a simple voltage regulator to rotate the crane. With this, however, the direction of rotation must be changed with a switch. In the meantime, I have found a voltage regulator from the MFA company that can variably regulate the speed bidirectionally.

Sources used:

- Rainer Bublitz "A Bavarian in Down Under", Kranmagazin No.55/2007,

- Technical data GOTTWALD AK 850, GOTTWALD GmbH 1982

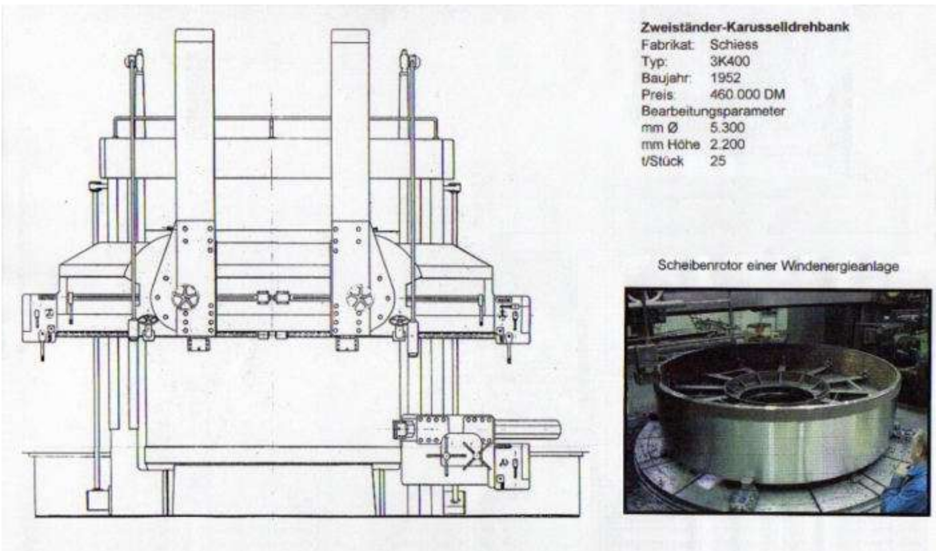
Photos: Ulrich Peters



Wax on Walther's carousel lathe

By Jürgen Kahlfeldt (text and photos unless otherwise noted)

A vertical lathe has fascinated me since the beginning of my apprenticeship in 1960 in a mechanical engineering company for mill equipment and similar large machines. Parts for rotary kilns and tube mills up to 5 m in diameter were machined there. The idea of replicating this machine matured in my mind while I was still working. So I got myself in the factory preservation (company archive)

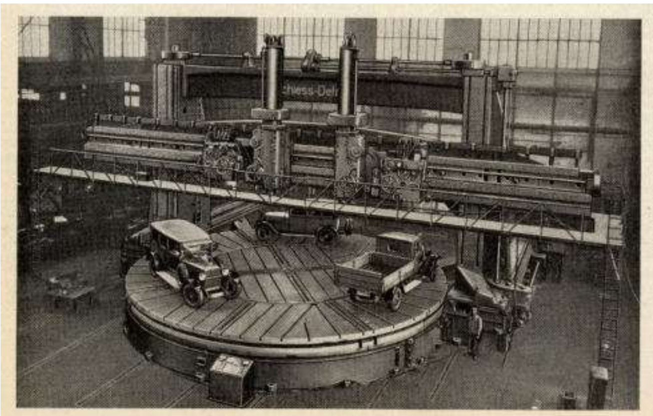


Drawing and photo of the carousel lathe technical documents and, with foresight, had 25-hole plates and sprockets with internal and external gearing made in V2A to match the large ball bearing from Walther's Stabil

The carousel lathe was obsolete after the MIAG company had given up heavy machinery construction and, due to the high dismantling costs, eked out a shadowy existence until rotary bodies were needed for the rotors of the huge wind turbines. See the excerpt from the Braunschweiger Zeitung from 2002:

Werkstücke mit einem Durchmesser von bis zu 5,30 Metern und einer Höhe von 2,20 Metern kann Andreas Thiesse mit der 48 Jahre alten Karussell-Drehmaschine bearbeiten. Das dürfte regionaler Rekord sein. Fotos: Jörg Scheib

Huge carousel lathes were already in use 120 years ago. An article about this was published in the VDI magazine in 1930:



A 1931 model of a vertical lathe was awarded a prize in the Stabil-Record-Zeitschrift, Walther's Stabil's customer magazine. It was only through my passion for collecting Stabil that I came into possession of this booklet. Unfortunately, the award-winning model was not included in the plan booklet.

Based on the face plate (perforated plate with a diameter of 25 holes, special part see above) on which the workpieces to be machined are stored, the other dimensions were set in relation.

2 II. Preise à 250,— RM. im Jahre 1931

Vogt, Kurt	Erfurt	15	54	Karussell-Drehbank
Hilbrecht, Alfred	Berlin	13	52 u. 56	Feuerwehrwagen

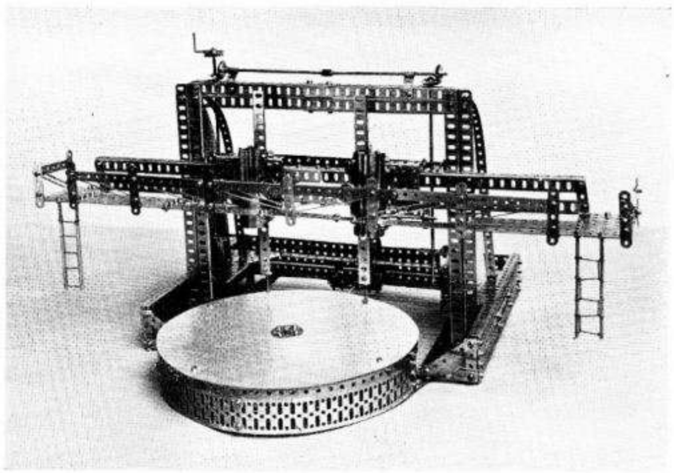
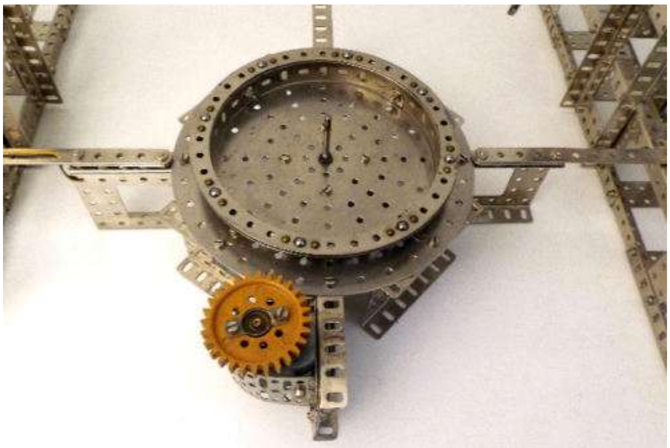


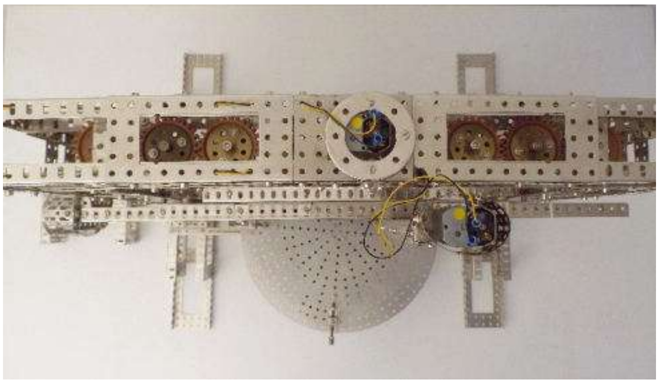
Abbildung 4 zeigt das mit einem **zweiten Preis** von 250,— RM ausgezeichnete Modell „K a r u s s e l l - D r e h b a n k" des Lehrlings K u r t V o g t, E r f u r t. Das Modell ist mit allen seinen konstruktiven Feinheiten nachgebildet und bietet durch Einbau sämtlicher Bewegungsvorgänge ein ausgezeichnetes Anschauungsmodell für die technische Lehrjugend.

A look at the "foundation" of the vertical lathe shows the drive pinion, including the drive motor, the stable ball bearing ring and the central stud bolt for holding the face plate:



The face plate seen from below with the upper ball bearing ring, ring gear and Ms disc wheel with hub. The faceplate and gear rim are custom-made products.

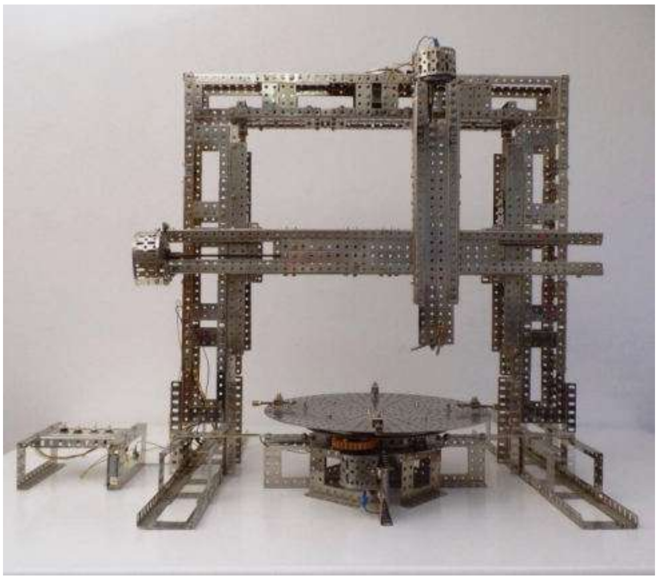
In the top view of the machine stand, the drive can be seen in the middle, which is attached there for raising and lowering the crossbeam:



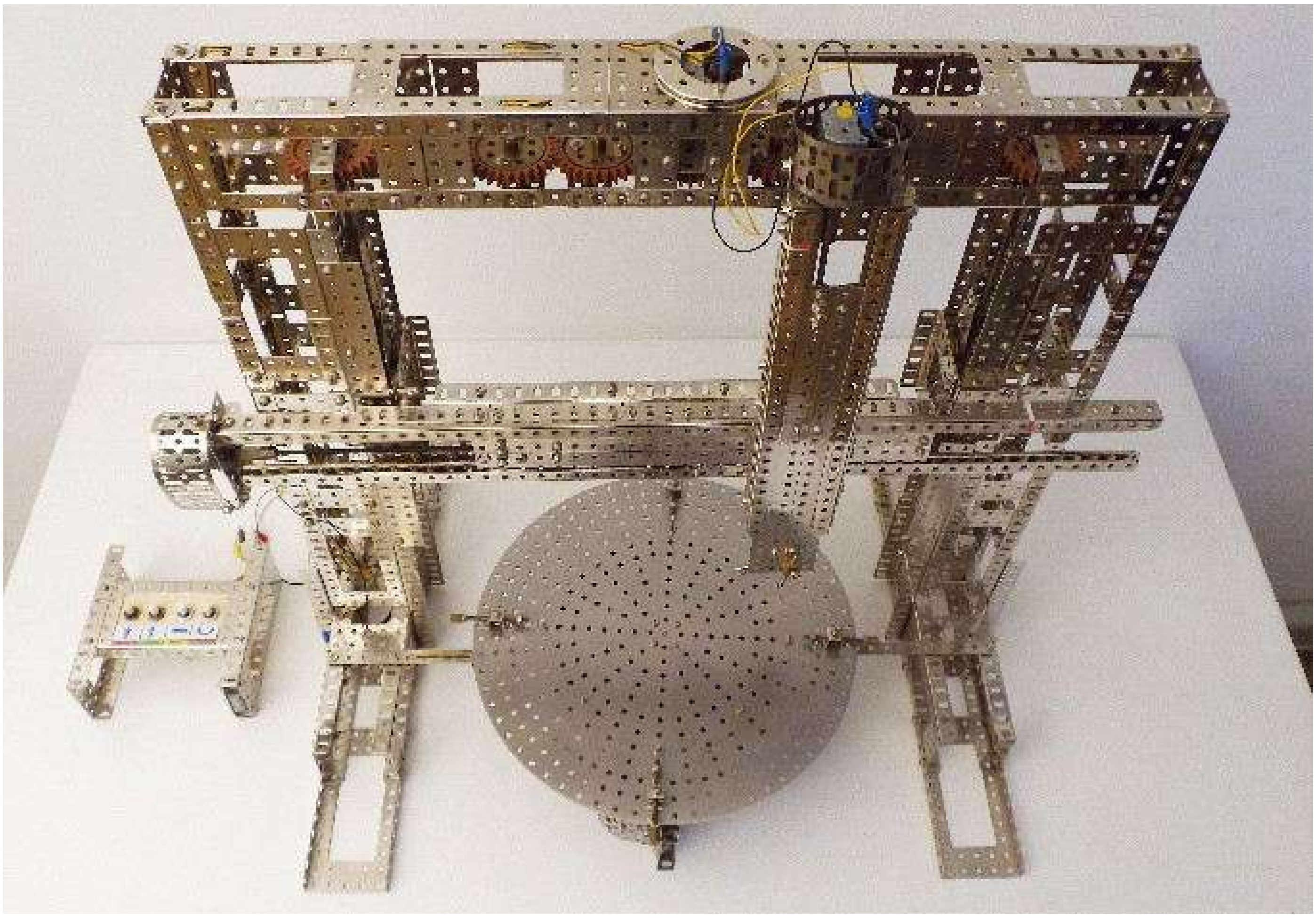
A synchronous transmission of power to the two vertical threaded shafts using a toothed chain failed. The solution was achieved with six overhung (loose) patent gears. Fixed long nuts in the crossbar allow for up and down movements. The same principle was used in the support for the lateral movements and the steel holder for the vertical movement. The drive for the support can be seen on the left edge of the picture.

The assembled vertical lathe in an oblique view:

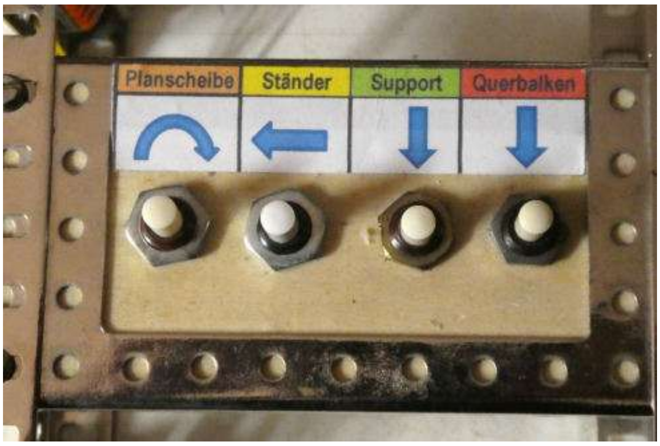
In practice, the faceplate is flush with the hall floor to enable easy movement of the very large workpieces. This means that the drive and parts of the foundation are sunk and not visible. The control panel can be seen on the left of the machine model.



The control panel for the four drive motors is equipped with simple pushbutton switches. Automatic operation without a supervisor is therefore not possible



possible and not wanted. An adjustable Märklin transformer enables the direction of rotation to be changed.



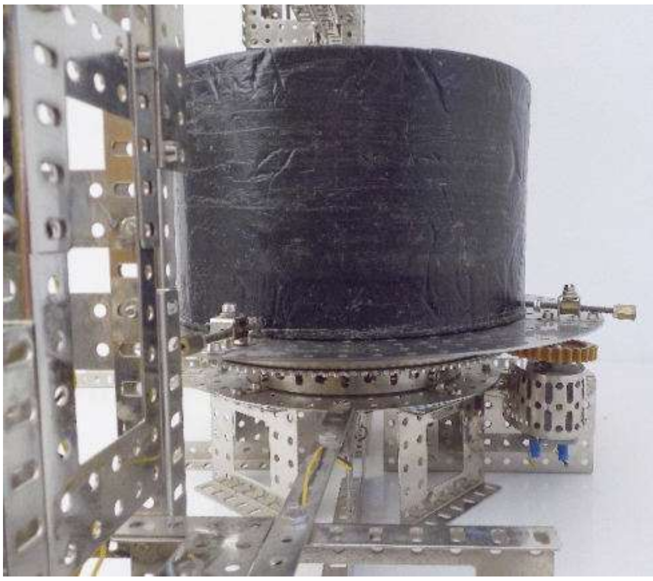
The carousel lathe should also work, but neither metal nor wood can be machined with such a metal construction kit model. Therefore, wax was melted in a water bath and solidified in a suitable mold. A few grams of black color powder were added to get a matching cast color. (*Editor's note: this looks like a stovetop job where our English friends like to say ATWF: Ask The Wife First.*)

I made a corresponding mold for a hollow cylinder out of wax and to make it easier

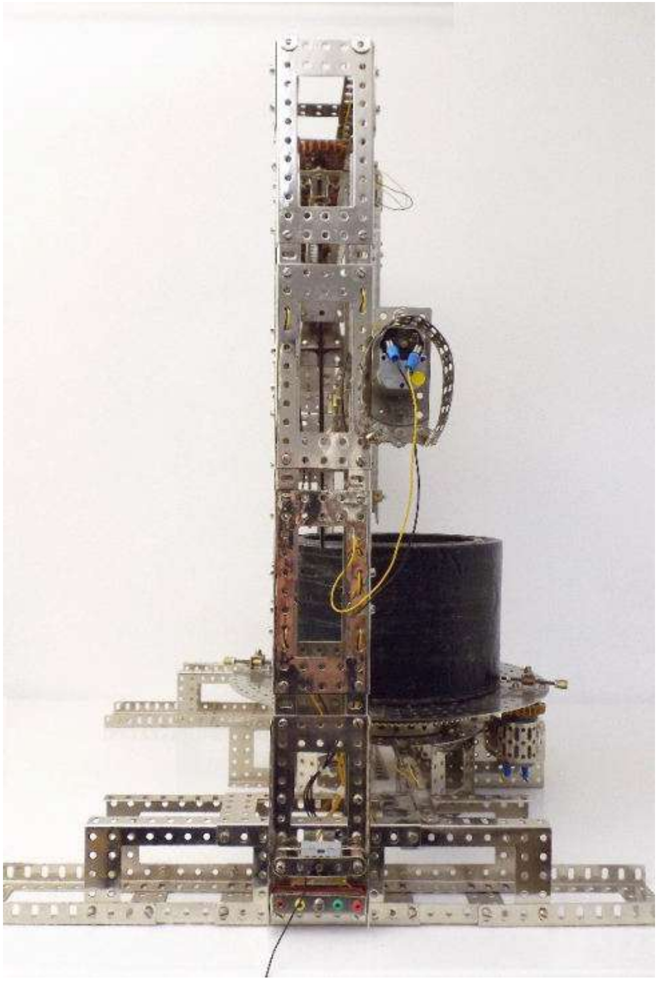
Unmold aluminum foil used. The next photo shows the already cooled wax before shaping.

I put the cast body in the form of a hollow cylinder made of wax on the faceplate as a test. I'm happy with the casting, it looks like a large cylindrical piece in the right colors and works well on a model vertical lathe, which means turning here.

For machining, the tubular body is centered and clamped using four clamping spindles. In the next two pictures you can see the wax workpiece clamped on the faceplate in a side view. Once in a detailed view of the faceplate and ...



... in an overall view



The lathe chisel is brought into working position with the steel holder and is ready to turn off the wax.

The vertical lathe passed its practical test at the 2011 screwdriver meeting in Bebra. Exactly the turning chips disintegrate into light gray parts, which then later require thorough cleaning of both the workpiece and the machine, just like in real life. (I*m background the proud builder*)

Later I was in an agricultural museum with the carousel lathe. The visitor reaction: "It was at MIAG". Where I spent my apprenticeship and working life.

Unimog 401/411 – the angular ones

By Fabian Kaufmann (text and photos)

When I discovered the 6" Ashtray Tires on NZMeccano a few years ago, I immediately knew that I would like to build a model with these wheels. In the corresponding scale of approx. 1:5, many details of a model can be better realized than with the standard tires on 3.5" Meccano rims, which have a diameter of approx. 11 cm and result in a scale of approx. 1:8.
So that the finished vehicle wouldn't be too big, I looked for a car or truck with very large wheels in relation to the length. That seemed to suit me with the Unimog, because it has an extremely short wheelbase of 1.7 meters in the short version. A first true-to-scale elevation revealed a wheelbase of just 31 cm in a model with the existing tires. That seemed promising and I started looking into the Unimog.

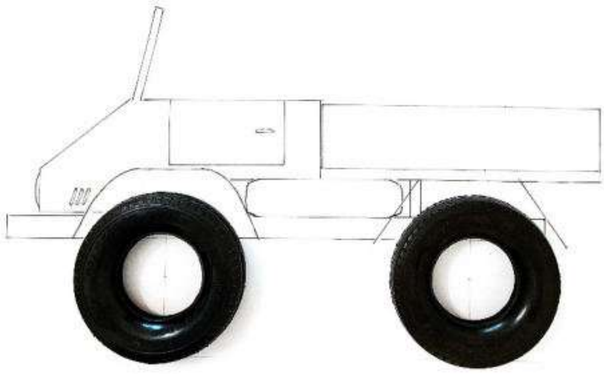
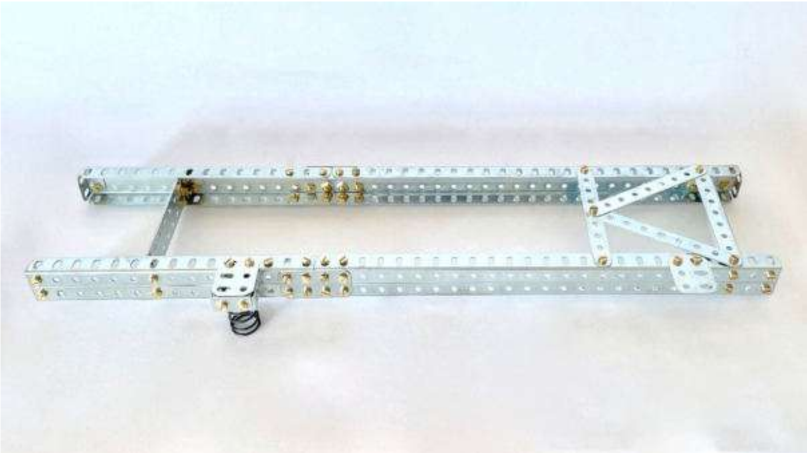


Figure 1 True-to-scale drawing corresponding to the 6" tires

The fact that I chose the 401/411 model and not a later one is because this early form of the Unimog from the 1950s still has a frame that runs straight throughout, which, in contrast to the later models, has a frame that is lowered in the middle with parts from easier to realize with a metal construction kit. In addition, the angular body is of course easier to replicate than the later rounded shape of the 403 model, for example. The original Unimog of the 401 series was built from 1956 as the 411 series with a few technical changes. However, since the differences between the series can hardly be transferred to a Meccano model of this scale, my model could be either a 401 or a 411.

Frame:



Picture 2 frame

Using my true-to-scale drawing, I was able to determine the dimensions of the ladder frame and the position of the axles. While researching on the Internet, I came across an article on the construction of truck frames and found out to my surprise that these frames can twist in the longitudinal axis and that this twisting is even desirable, especially in the case of all-wheel drive and off-road vehicles to allow a greater entanglement of the axes. While I usually inve a lot of time in a frame that is as torsion-resistant as possible, this time the matter was settled fairly quickly.

The frame consists of pairs of 25, 15 and 2 angle brackets arranged one above the other on each side, which I connected using 4-hole flat girders. This results in two U-profiles with 42 holes and 53 cm in length. At the ends they are connected to a frame with angle brackets screwed to form U-profiles with a width of 9 holes. The position of the cross members in between resulted from the type and position of the gearbox and the meeting of the cardan shafts of the front and rear axles. At the rear end there are two triangular angle plates to prevent the frame from twisting about the vertical axis.

Depending on the position of the front and rear axles, there are small spring domes on the outside of the frame, on which the coil springs will later be supported. The springs are held in place by the threads of the screws in this element. However, they are not particularly strong when pulled and need a counterhold so as not to lose their bearings when rebounding.

to slip (see next chapter).

portal axes:

An essential feature of a Unimog is of course its portal axles. The front and rear axles are fitted with countershaft gears on the wheel-side end of the axles, which allow the ground clearance of this model to be increased by ½ inch. The original also includes a gear reduction at this point, but I didn't take it over. For one thing, I didn't have a good working gear pairing available for a half inch pitch, other than the 19/19 that I used. And secondly, there is already a design-related reduction of 12/50 in the differential itself.

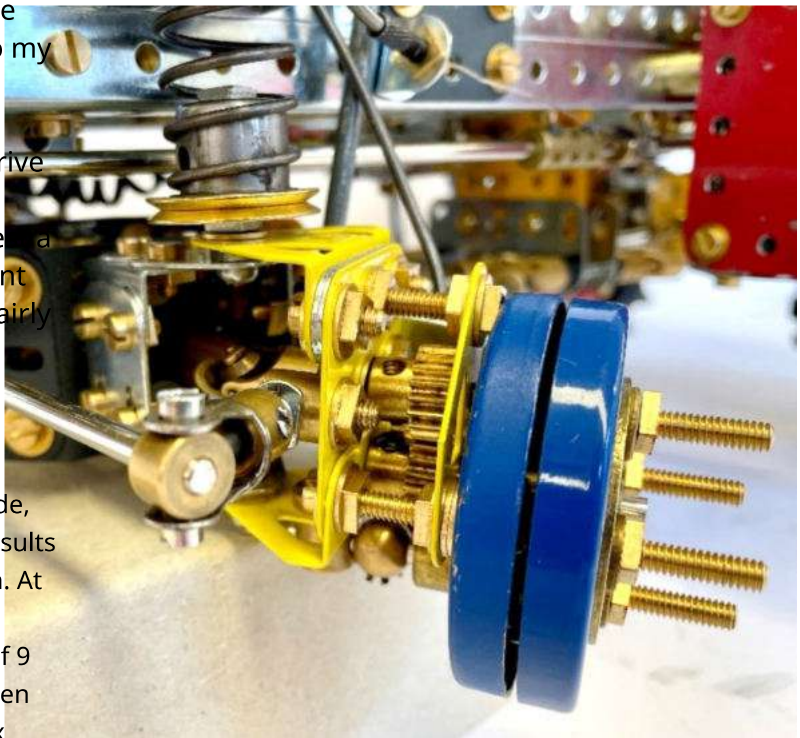
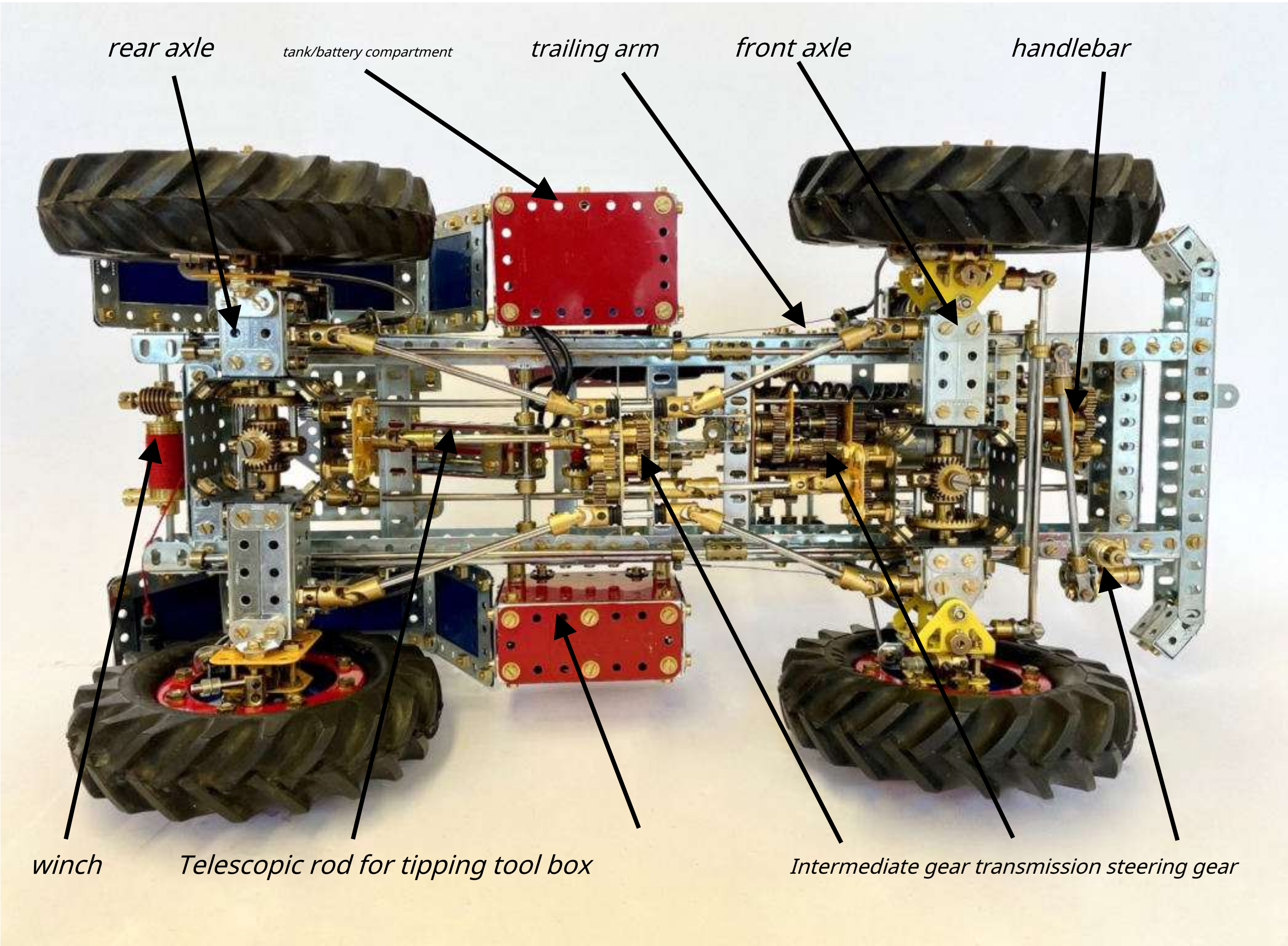


Figure 3 Portal axle drive

Figure 4 Front axle prototype

The axles are supported on the frame by means of coil springs. I bought the springs in a hardware store because the Meccano or Märklin system does not have springs that are large enough and strong enough to support the expected weight of several kilograms. They have a diameter of 2 cm and a length of 4 cm. Since the springs are only clamped in their holders on both the axles and the frame and are not screwed tight, there is also one for each axle two damper elements behind the front axle and in front of the rear axle. However, they do not dampen, they only have the task of giving the front or rear axle a stop and a certain amount of guidance when rebounding. This means that the axles cannot fall out of their holders later when the Unimog is lifted.

Figure 5 Axle twisting in practice

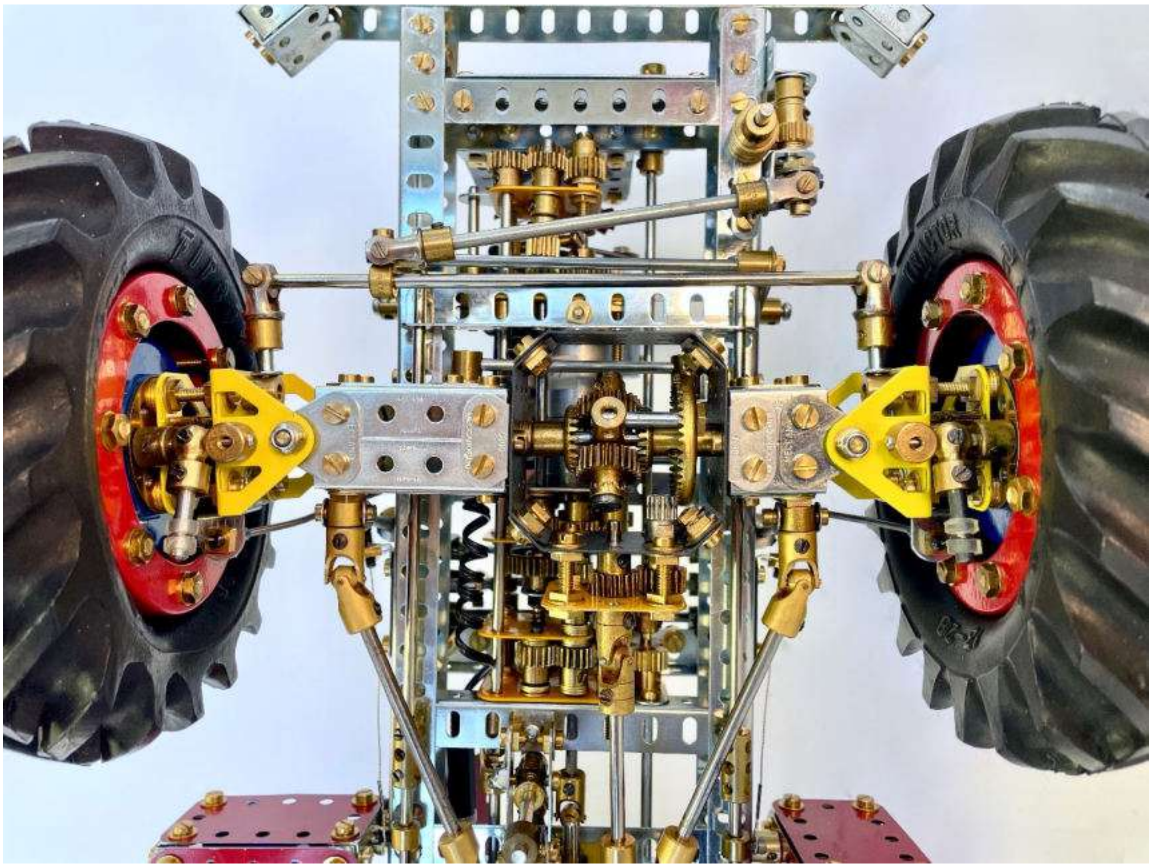


Picture 6 View from below

the front and rear axles themselves are from the basic structure identical table: the housing for the differential from four each together to an octagon screwed "Double Obtuse Flanged Plate". This are octagons from the center of axes sideways offset a hole arranged. In front is the differential to the left, behind to the right puts. the gimbal waves that lead from the axles to the middle of the car do not meet directly, but are offset by a hole from the central longitudinal axis of the Unimog. At this point an intermediate gear consisting of two 3x6 hole plates is installed (see gear).

For lateral stabilization, the front and rear axles, like the original Unimog, each have a Panhard rod, which prevents the axles from moving sideways to and fro.

Unfortunately, I could not implement the guidance in the longitudinal direction using tubular drawbars as in the large prototype, because large ball joints would have been necessary for this. Instead, the drive axles are each guided by two diagonally running shafts, which are mounted on the intermediate gear and on the axles themselves using Märklin cardan joints. In addition, the drive shafts between the two differentials and the intermediate gear are each equipped with two cardan joints. The front and rear axles are thus supported on the frame in all three dimensions: horizontally by the drawbars, vertically by the "damper" and the springs, and laterally by the Panhard rods. As a result of this effort, the portal axles are relatively free to move and the gears are free from friction losses.



Picture 7 Front axle and steering rods from below

front axle

Two "trunions" together with a 3x3 hole plate form the steering knuckles. The tips of the "trunions" form the steering bearing on the axles, and the perforated plate is the basis for the gearbox of the portal axle. In order to keep the scrub radius as small as possible and because the front wheels should stand a little "bow-legged" like on the original, I tried to achieve a slightly negative camber. By screwing the vertical 3x3 hole plates once inside and once outside the angled "trunions", there is a slight offset between the upper and lower bearing point of the steering knuckles. As a result, they tilt downwards by a few angular degrees.

The lower plates for holding the spiral springs each consist of a small "pulley" and a "chimney adaptor" and are located on the upper bearing of the steering knuckle. The coil springs happened to fit snugly over these little metal cones. Due to the additional 19/19 portal axle gearbox on the outside of the steering knuckles, the axis of rotation of the front wheels is still relatively far away from the wheels. I tried to minimize that again by designing the rims (look there). Of course, the camber angle and spread aren't perfect like the big model, but only an approximation to the ideal of 0° scrub radius. The stability and function of the drive were more important to me here.

rear axle

With the exception of the steering knuckles, the rear axle is designed like the front axle, and not mirror-symmetrically, but actually. If the two axles were placed side-by-side instead of opposite, the off-center differential housings and gear placement within them would be identical.

The rear axle has axle stubs that are one hole longer on each side of the differential (3 and 5 holes instead of 2 and 4 holes in length), corresponding to the missing steering knuckles. However, the functions of the brakes and the portal axle gearbox are also identical.

brakes

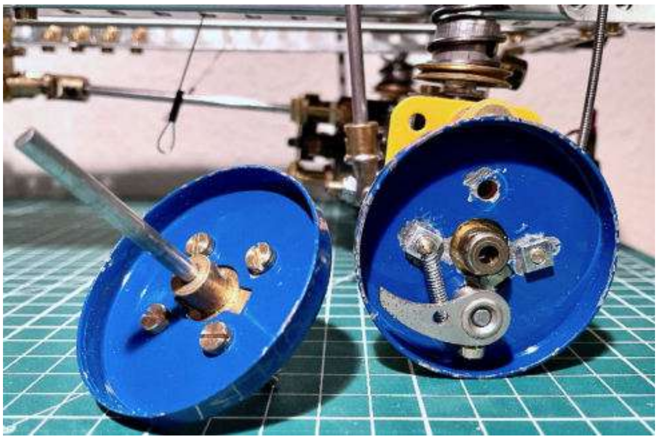


Figure 8 Brake drum from the inside

A pawl is used as the "brake pad" on all four brakes, which is actuated by a lever against the force of a small spiral spring from the hardware store.

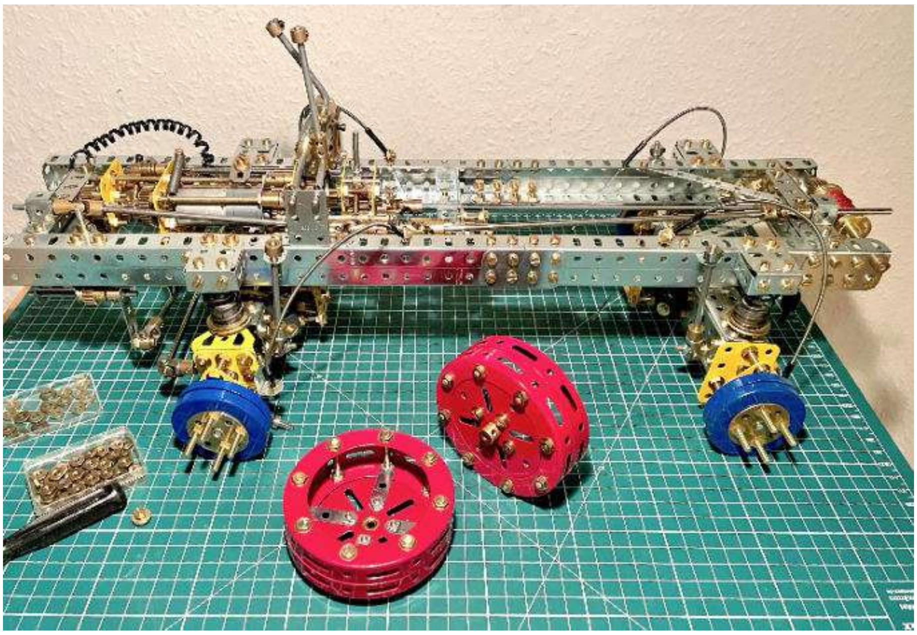
The pawl is rotatably mounted in the stationary part of the brake drum and, when actuated, acts on the rotating part of the brake drum on which the wheel is mounted. The brakes can be operated via the Bowden cables and a linkage that runs lengthwise under the frame. Actually, I would have liked to have implemented a brake pedal, but for that there was no more space at the end. The brakes can now be actuated by a bracket located below the frame over the front axle.

steering

The steering gear is located under the front left frame rail. A vertical snail is used here, which acts on a 19 sprocket. The pinion turns a steering lever, which points vertically downwards when driving straight ahead and moves a horizontally arranged steering rod, which in turn is attached to the tie rod. This steering rod creates a very flexible connection between the frame or steering arm and the front axle and follows all axle twisting and steering movements without restriction, just like on the original Unimog.

Manual gearbox and intermediate gearbox

The transmission of a real Unimog 401/411 had six forward and two reverse gears. From the start it seemed unlikely that I would be able to build such a complicated gearbox. I remembered my Richard Smith tractor I built from instructions a year ago. The motorized transmission within it provides “fast” forward and “slow” reverse, as well as control of a hitch and PTO. Since the Unimog was also used in agriculture and had all these functions, I found this compromise very acceptable. So the plan was, the narrow and



Picture 9 frame with axles and gears, two rims

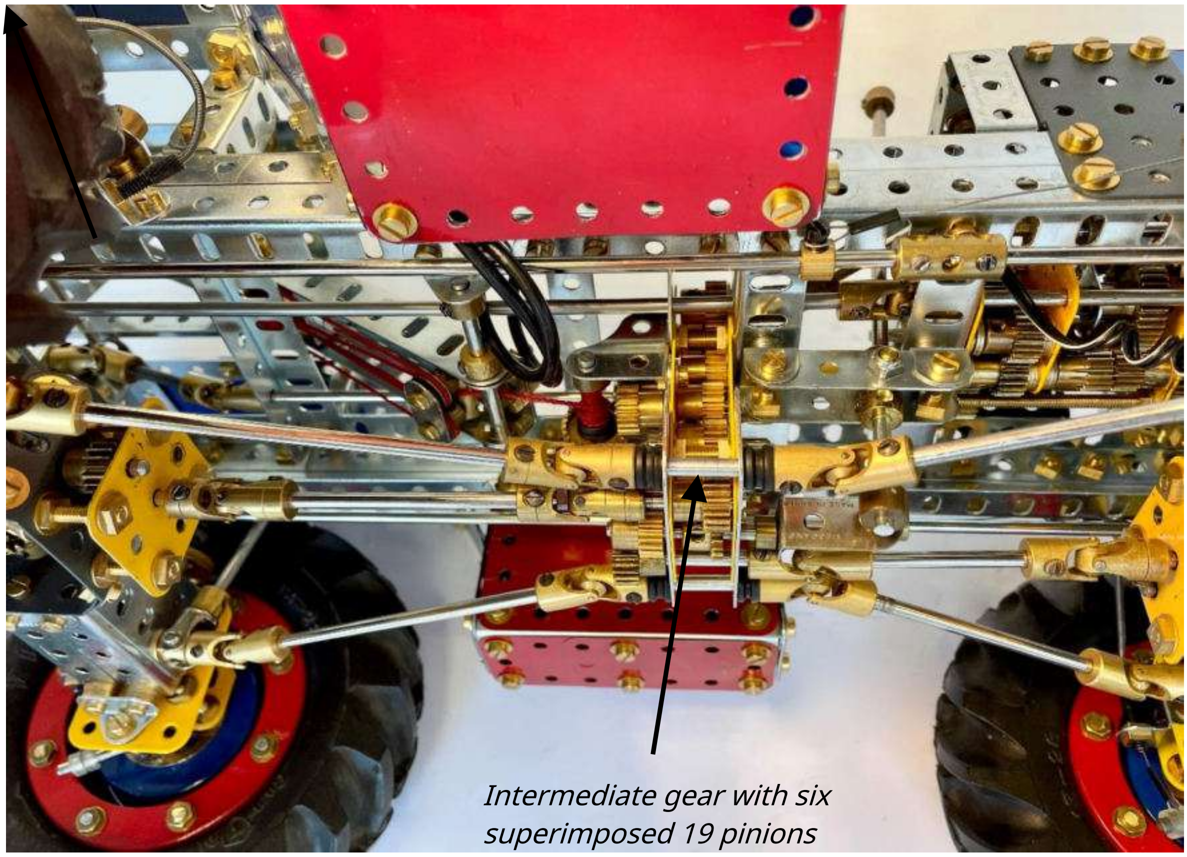


Figure 10 Intermediate gear from below

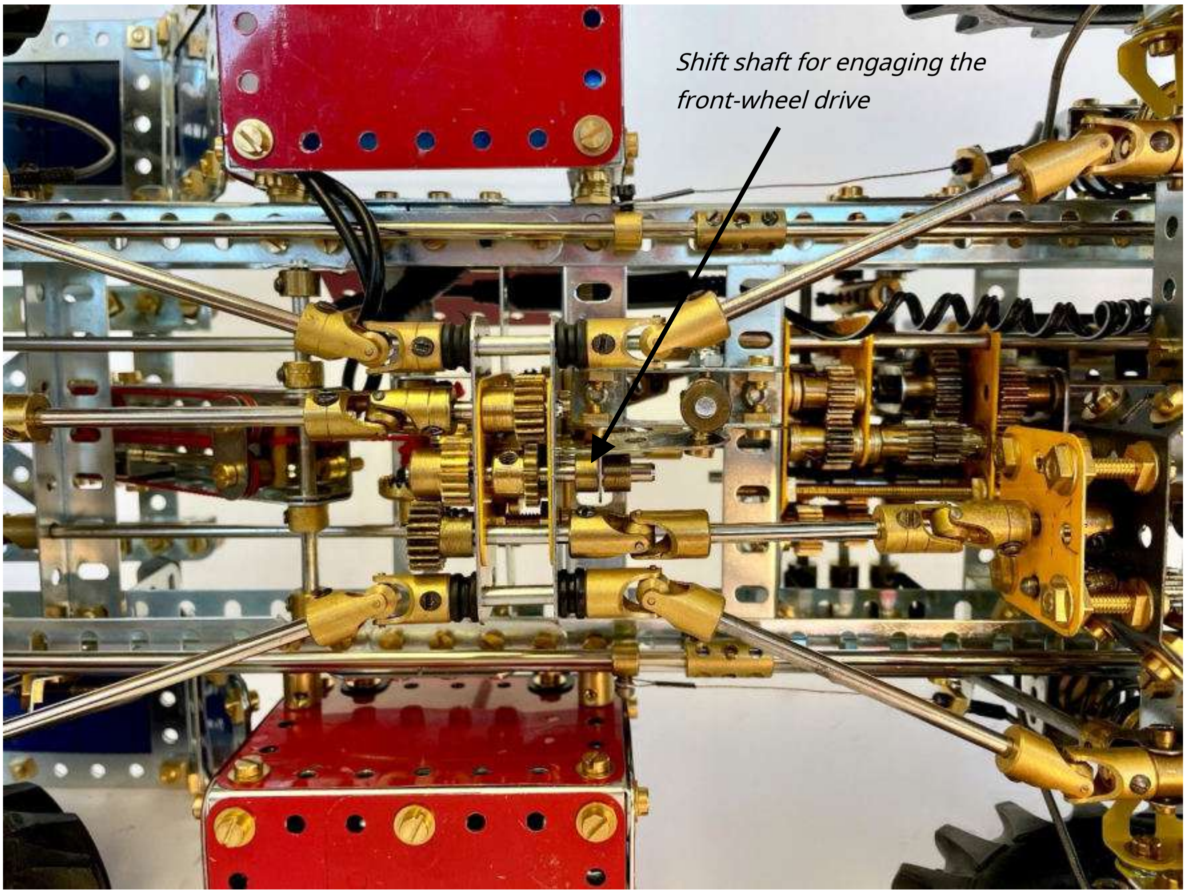


Figure 11 Intermediate gearbox from below, selector shaft for engaging the front-wheel drive

very compact gearbox yet a second time to build and it Meanwhile to modify-ren that it at more suitable position in men of Unimogs place finds. At the tractor from Richard Smith is the transmission With his Reason-shape from3x4 perforated plates upright a-built, in order to the chassis of tractors possibly most narrow remains. I de-parted with me my Unimog for the lying A-build, um possibly most under the cab level to lead-ben. place in the width was in each case enough existing the, and so could I different functions at best to use. the PTO shaft on the left side of the car already in direct the more spatial proximity to the corresponding shaft in the gearbox. I just needed

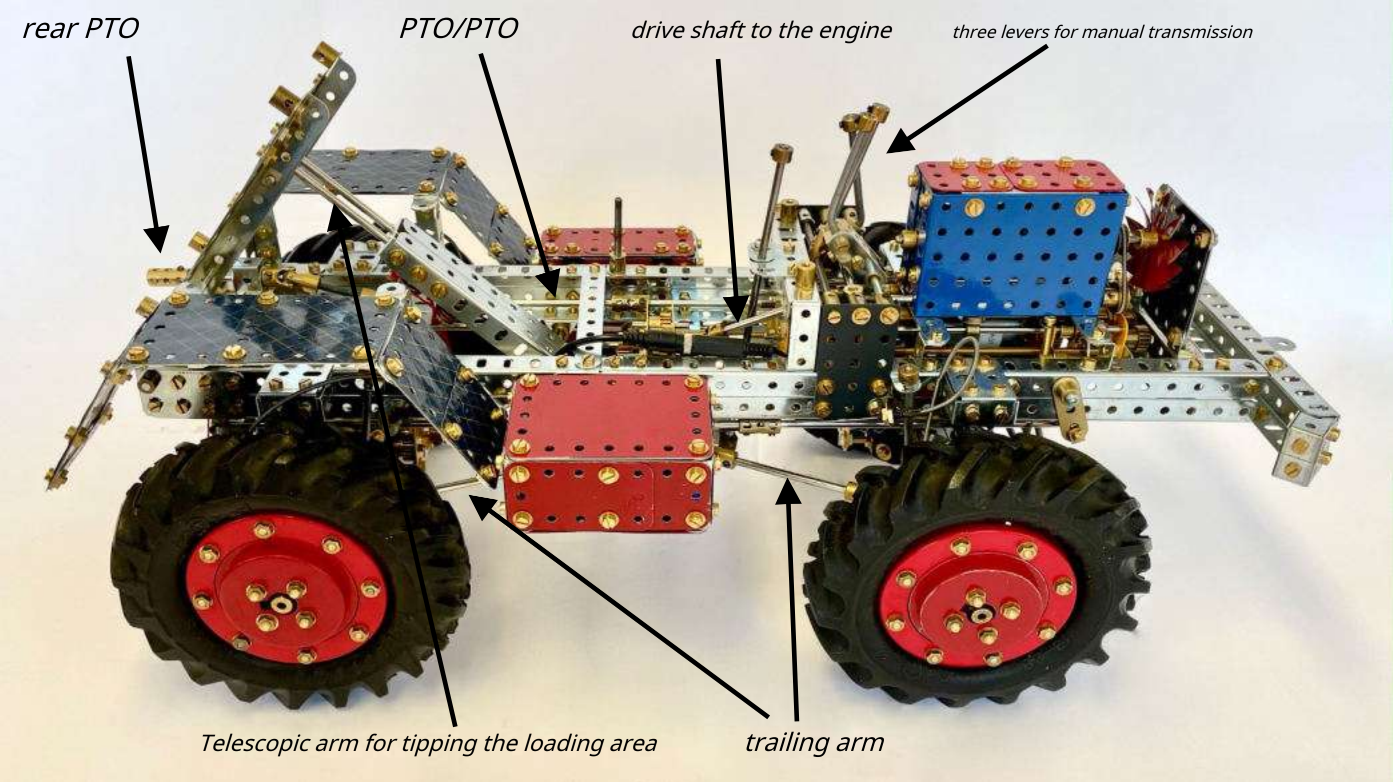


Figure 12 Chassis side view from the left

add another 19 sprocket to connect them. Controlling the winch at the stern wasn't a big problem either. The corresponding shaft on the right outside of the gearbox was already in a very favorable position for this purpose.

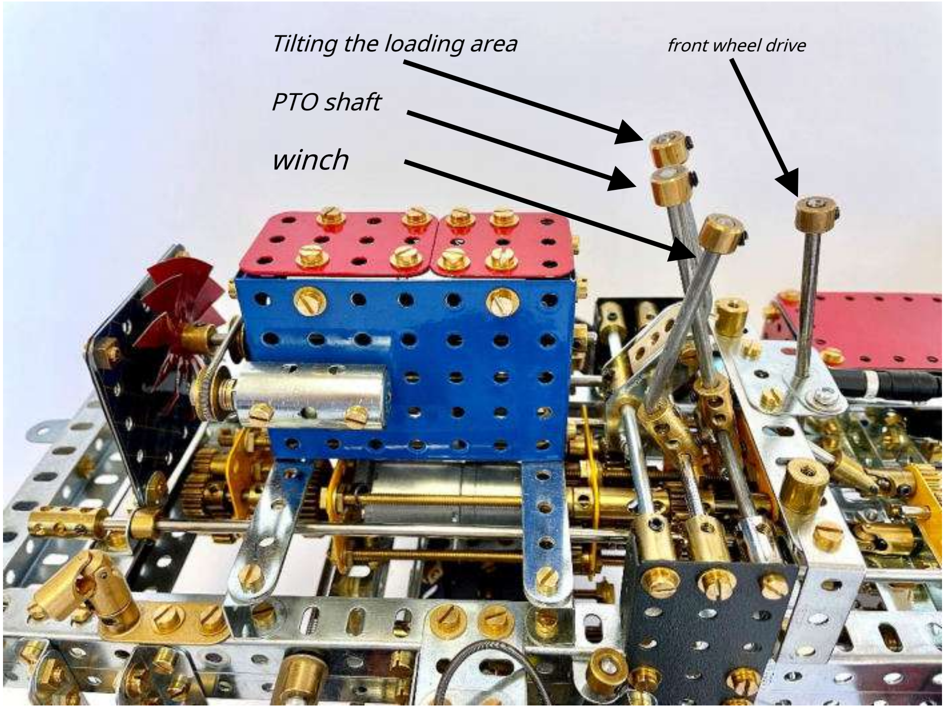


Figure 13 Jumper over the gearbox

The only thing I didn't implement in the end was the forward/reverse function in this form. Although I had the output shaft for a practical test connected the drive of the wheels to the intermediate gear, but had to realize that the Unimog was already so heavy with its weight of 6.5 kg, even without additional attachments, that the small engine could no longer cope with this task could. That's why I rejected the plan to have the Unimog drive with engine power and made it a classic push vehicle. In order to still be able to use the gearbox function that had become free, I looked for pictures of the Unimog on the Internet and came across a configuration with a tiltable loading area instead of the usual fixed loading area, which then served me as an alternative.

Since the Unimog is no longer powered by the engine, I wanted to implement at least one visible function that is driven by the wheels when pushed. The flow of force is virtually the opposite here. compared to the example. Since the portal axles and differentials are almost prototypical, an engine block with a rotating fan wheel was the obvious choice

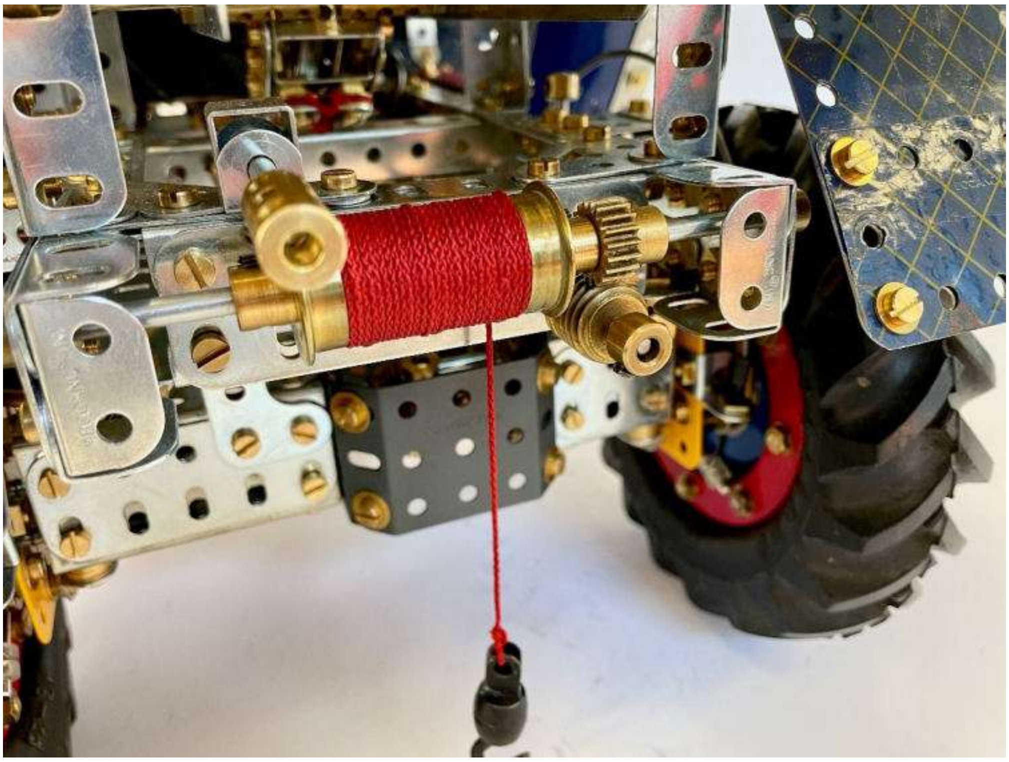
on. When the model is pushed over the ground, the shafts of the portal axles move and drive the fan wheel in front of the indicated motor via the intermediate gear.
There are a total of six 19-tooth pinions in the intermediate gear, which are arranged one above the other as a gear wheel cascade. They transmit the movement of the drive axles from bottom to top to the engine, not past the transmission shaft for the tipper, but through it. For this purpose, the second of the six 19-tooth sprockets counted from the top is designed as a loose wheel on the drive shaft of the tilting mechanism. The loose wheel is the intersection of the two drive trains of the travel drive and the electric drive of the auxiliary units. So it transmits the movement of the axles upwards to the engine and fan impeller indicated, while at the same time the horizontal shaft from the gearbox can drive the telescopic arm for the tipper.

A special feature of the original Unimog was the lack of an intermediate differential. At the beginning of my work on the model, when I studied the various sketches from the Internet, I failed to notice that this actually very important component was replaced by a switchable front-wheel drive for off-road driving. Since I had first rigidly connected both axles, I noticed a cracking noise in one of the differentials when cornering, which was probably due to the missing intermediate differential was caused. In order to do justice to my template, the Unimog 401/411, and to eliminate the cracking noise, I modified the intermediate gearbox somewhat belatedly so that the front-wheel drive could be switched on with a lever. This lever is located behind the other three shifters between driver and passenger seats and extends from there to the lowest level of the cog wheel cascade. The shaft located on this level is able to shift a few millimeters in the longitudinal axis thanks to the use of a narrow 19 sprocket thereby disengaging the front axle in its forward position.
In my edited version, the gearbox now has three switchable output shafts:

1. for the front and rear PTO shafts,
2. for a winch at the stern and
3. a telescopic rod for tipping the loading area.

In order to integrate the three shifters into the gearbox, I installed a kind of "bridge" over the gearbox. On this bridge, three axles are arranged horizontally one behind the other, perpendicular to the direction of travel. A shift lever is mounted on each axle, which moves the lever on the transmission below it back and forth. The changeover for the cable winch also has indexing further forward in the gearbox, which engages in the neutral position as well as clockwise and counterclockwise rotation.

1. I extended the PTO shaft from the middle of the frame forwards and backwards so that there is now a connection for implements at the front behind the bumper and at the rear. In the middle of the car, where a spare wheel is mounted on the frame, I had to lower the PTO shaft so that it doesn't rub against the spare wheel. It is above the frame level at the front and rear and just below it in the middle of the car.



Picture 14 PTO shaft and cable winch at the rear

2. Instead of a power lift, I decided to install a winch at the rear. It runs for a longer period of time and cannot block. If you forget to switch off at the end, the rope is automatically wound up or unwound in the other direction. In principle, this winch works in the same way as the tilting gear: The speed of the wave is geared at a ratio of 1:1 or 1:2.5, depending on the direction. This means that the winch winds up the rope very slowly and slacks off twice as fast. As long as you don't let it continue at the end as described above.

3. For raising and lowering the loading area, I built a telescopic rod based on the example of Günther Lages. It works via an integrated pulley mechanism, which in turn is driven by a cable winch directly in front of the telescopic pole. The cable winch pulls the telescopic rod apart and thus pushes the loading area upwards. On the way back down, the cable winch releases the cable again and gravity moves the loading area back to its original position. The same applies here with regard to the transmission as with the cable winch at the rear of the car: depending on the winding direction of the cable, it goes up slowly with correspondingly more power and down a little faster.

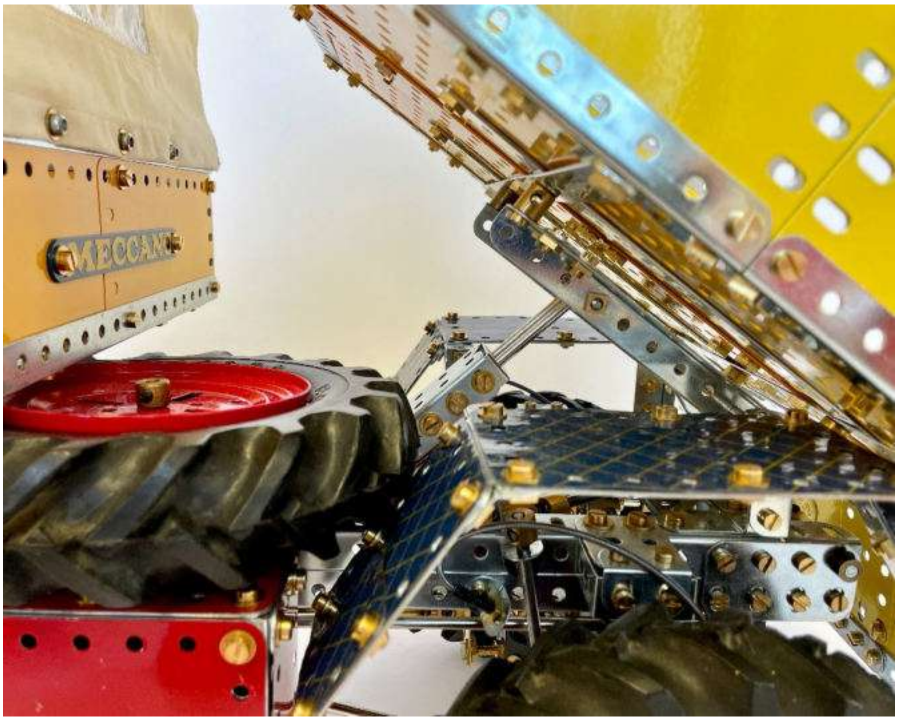


Figure 15 Side view from the left of the tilting mechanism

engine block

Since the Unimog is a push-type model without an electric drive, I installed a dummy engine in the front part of the car above the gearbox for the various functions. When driving, the fan wheel moves behind the radiator. The engine block itself is kept very simple. It consists only of two 5x3" and 7x5 hole angled plates, which are connected to a hollow body of 3x5x7 holes. At the front end of the "motor" three ½ inch cord rollers are connected via a transmission spiral and thus drive the fan wheel when the Unimog is pushed. The connection from the intermediate gearbox is made by an angled cardan shaft that snakes along under the three support shafts of the shift levers.

Wheels

Picture 16 A complete wheel with hub cap and wheel nuts

The first thing I needed for the wheels was the rims. For this I used two "Circular Girders" together with a 2½" round plate as the middle part: The two Circular Girders were screwed together with eight threaded rods to form a U-profile. 3-hole bands were used in four places as holders for a "Face Plate" is also inserted from the inside. Because the "Face Plate" is on the outside of the rim, the entire brake drum and part of the portal axle gear disappear later inside the rim and the entire wheel comes as close as possible to the steering knuckle Also the scrub radius will be thereby reduced as much as possible. A "Wheel

Flange 2 1/8" " serves as a "hub cap". Everything is placed on the brake and secured with four wheel nuts, just like on a "real" vehicle.

Firestone "Tractor Ashtray Tires" in sizes 13-28 are used here

body

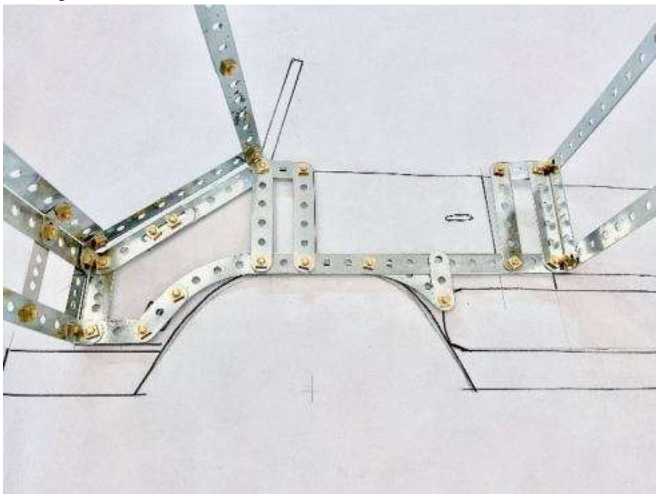


Photo 17 The frame for the cab at the start of construction

The body consists of the driver's cab and the loading platform. Both are constructed as one unit and can be removed from the frame as a whole. Seen from above, the driver's cab has a slightly conical shape, just like the original.

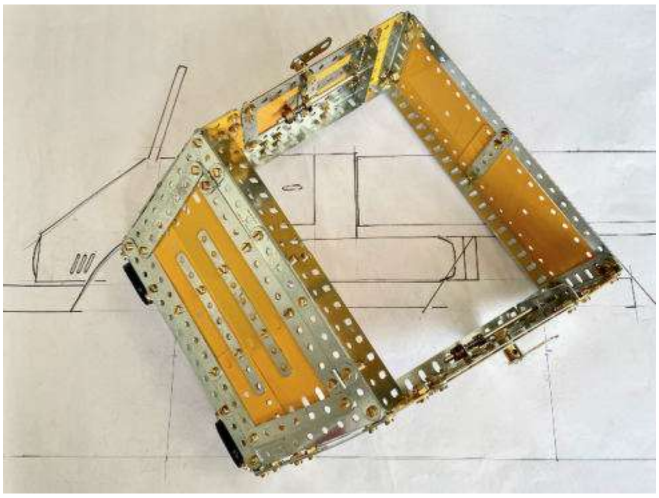


Photo 18 The driver's cab seen from above

With a width of 15 holes, the grille is 5 cm narrower than the rear end of the cab. The bonnet and doors can be opened. As a little extra, the doors are equipped with door handles and a locking mechanism. A small spring sits on a shaft on the inside and, when the door handle is released, pushes it into a hole in a 6-hole angle bracket that acts as a door frame.

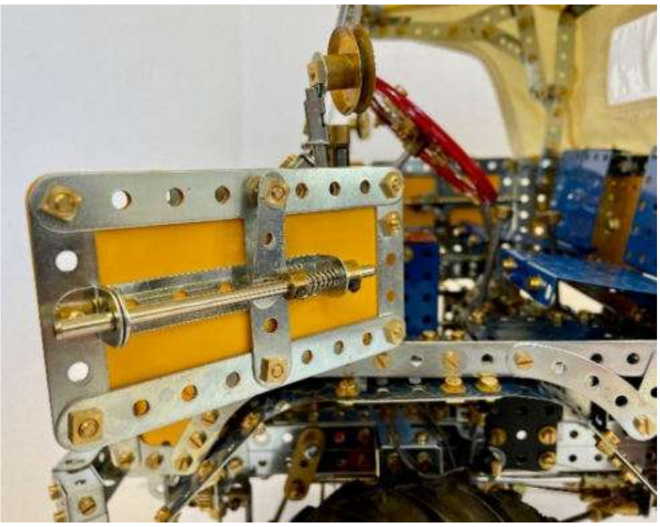


Figure 19 The locking mechanism of the doors: spring-loaded shaft as a bolt

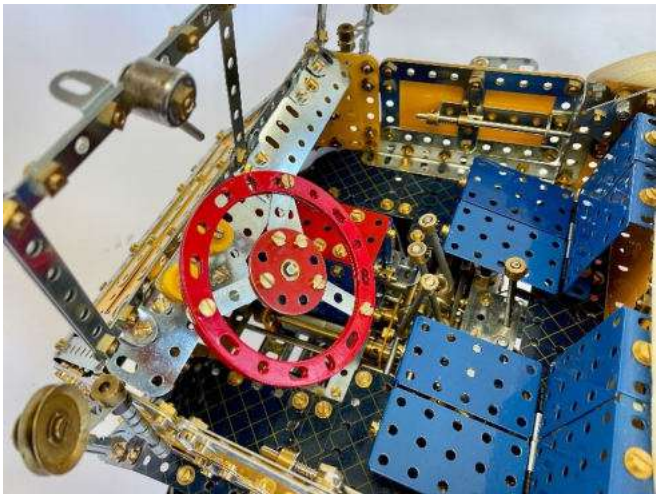


Figure 20 Driver and passenger seats. The two mounting screws are under the seats. Windscreen wipers with motor only on the driver's side.

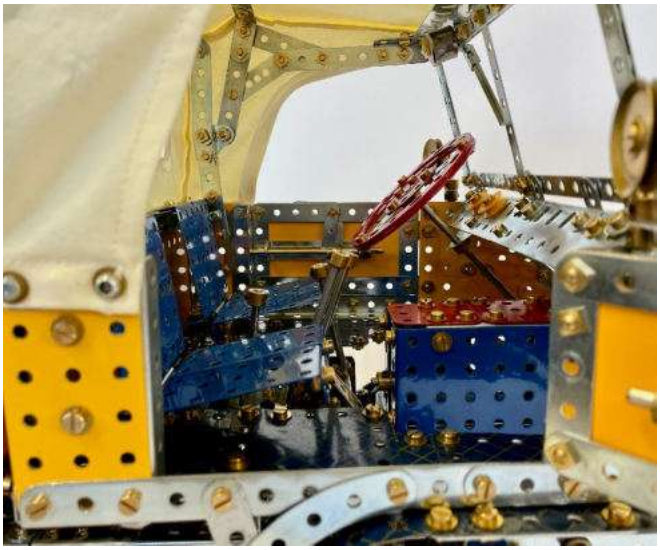


Figure 21 Top mechanism seen from the inside

The loading platform consists of angle brackets and flat strips, which form a box of 22 holes

Length, 19 hole width and 6 hole height are put together. The side walls are filled with cladding panels. The floor is pieced from solid Meccano panels. The rear wall of the loading platform can be folded down for the tipping function.

The open bonnet reveals the engine including the fan wheel and radiator. The windshield can be placed forward on the hood like the original.

Photo 22 The rear wall of the loading area can be folded down to unload bulk goods.

The front fenders are firmly attached to the cab. They consist of a 5x9 and a 5x11 flexible Meccano plate per side, which are connected in the middle and reinforced from below with 5-hole straps. The rear fenders are made of the same sheet metal. However, they are not bent, but made up of three parts each assembled with the help of brackets and attached to the side of the small supports of the loading area.

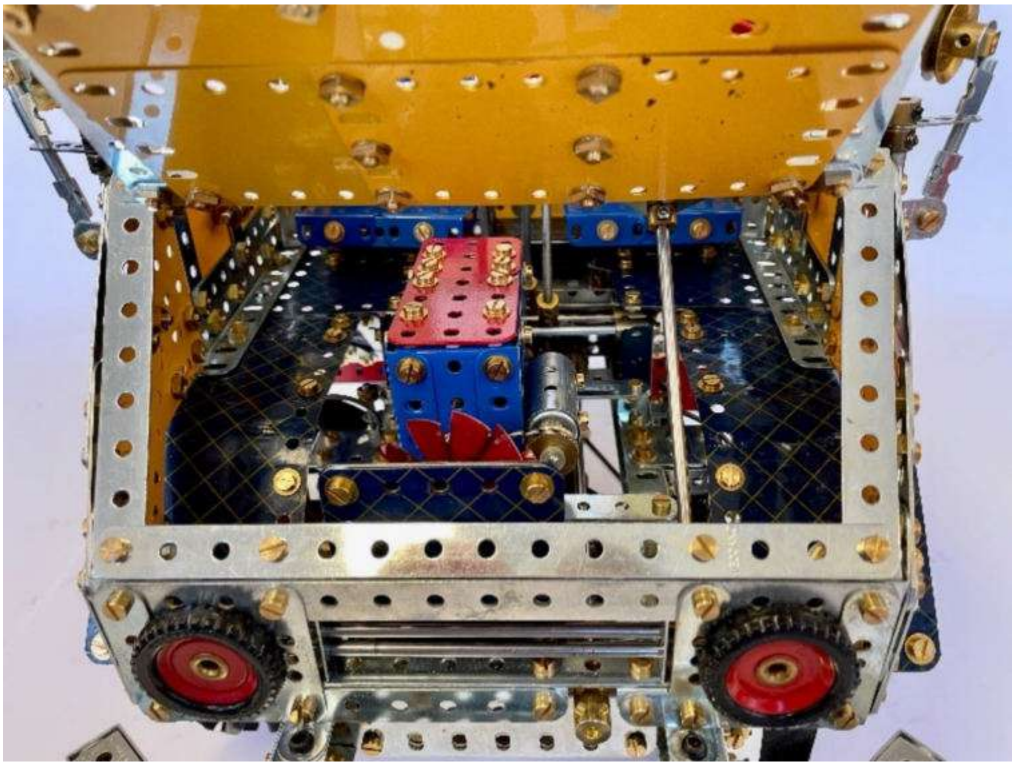


Figure 23 View of the engine through the open bonnet

Dimensions of the model:

Length: 58.5cm
Width: 27cm
Height: 37.5cm
Wheelbase: 31cm
Track width: 24 cm
Ground clearance: 6.5 cm

Tires: 6" Firestone, approx. 16 cm diameter
Motor: 12V gear motor with 60 rpm

Weight: about 11kg

Fig. 24 Top open and windscreen folded down

Figure 25 Side view, hood closed

Figure 26 and 27 oblique views

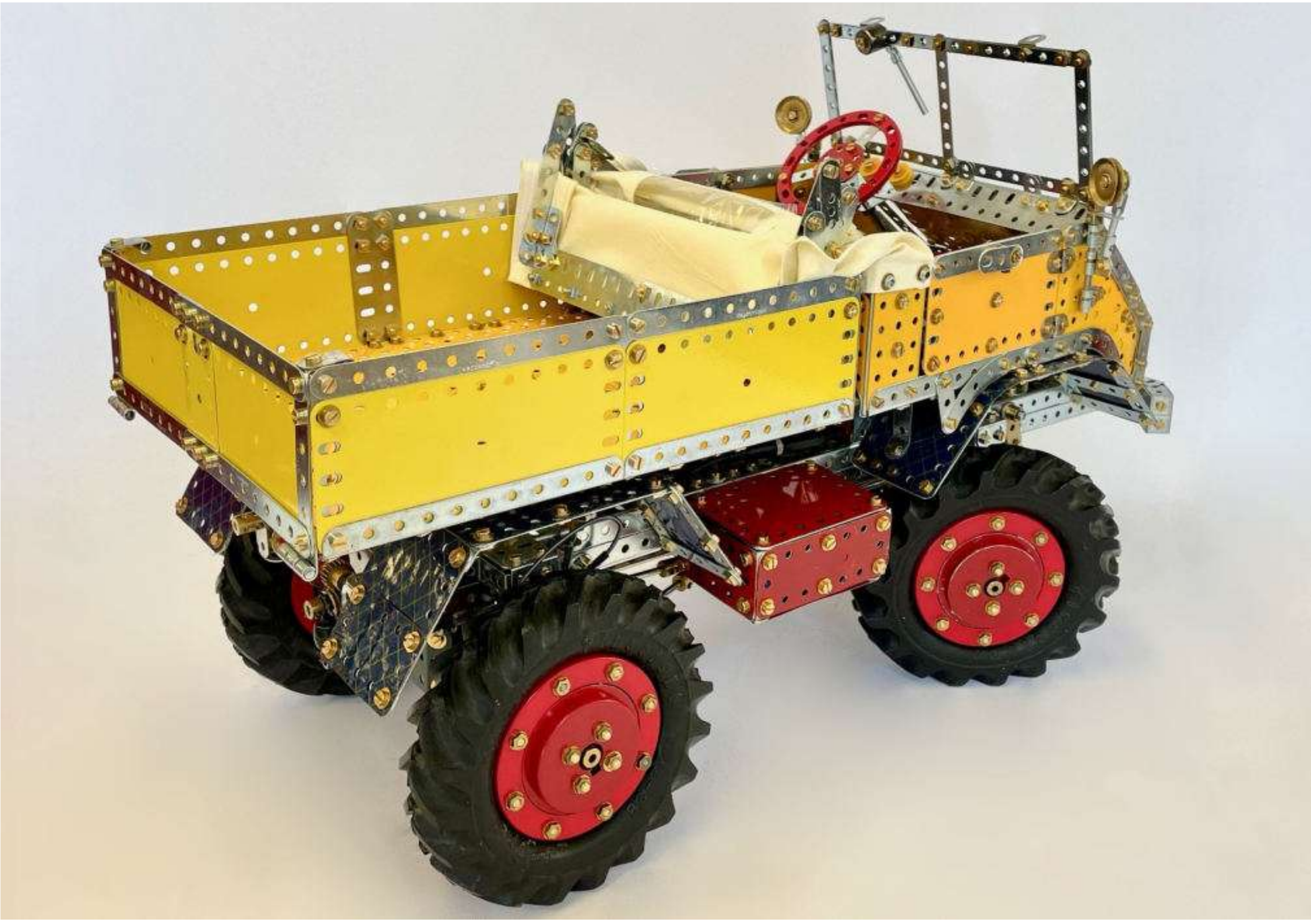
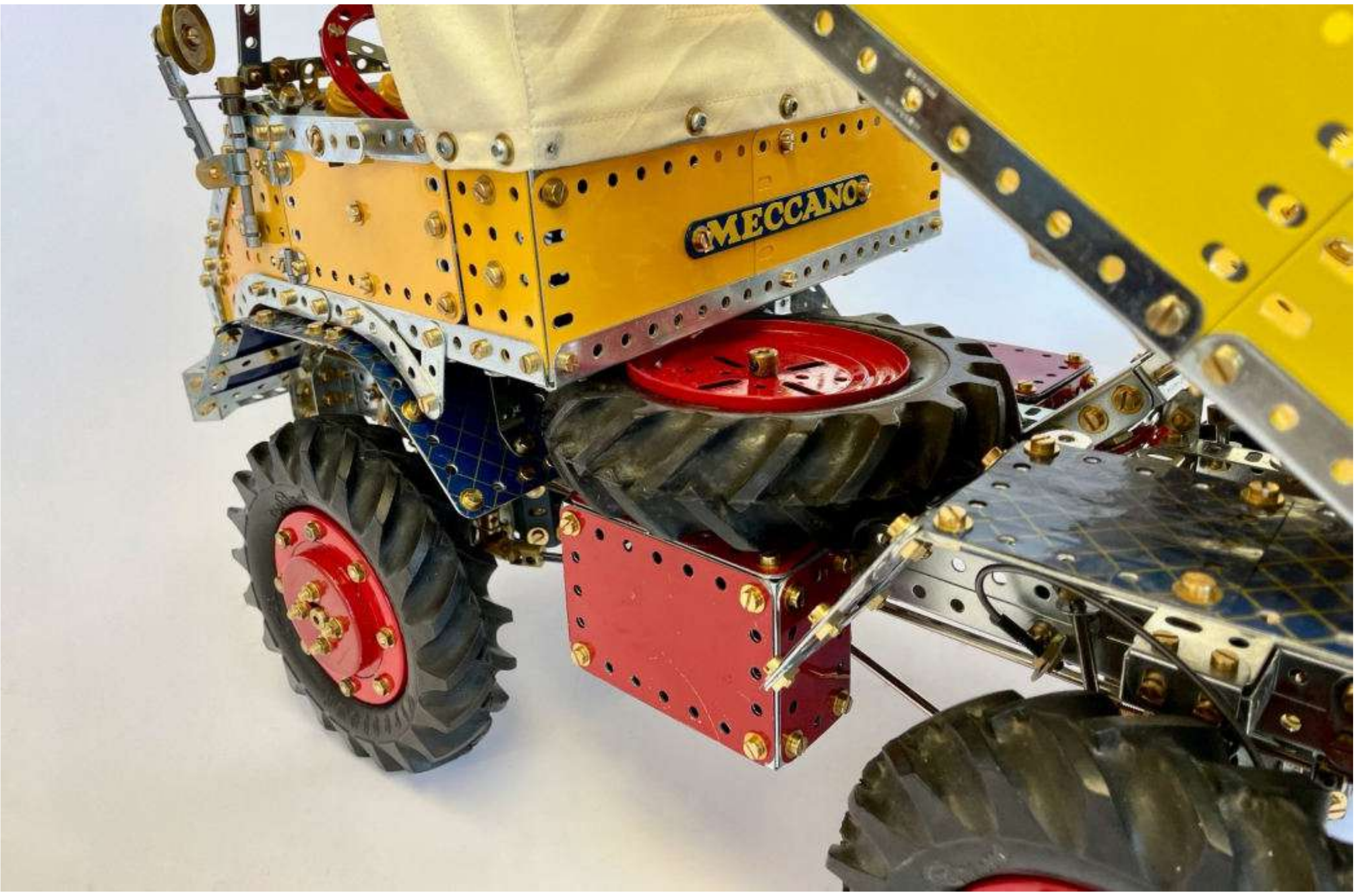
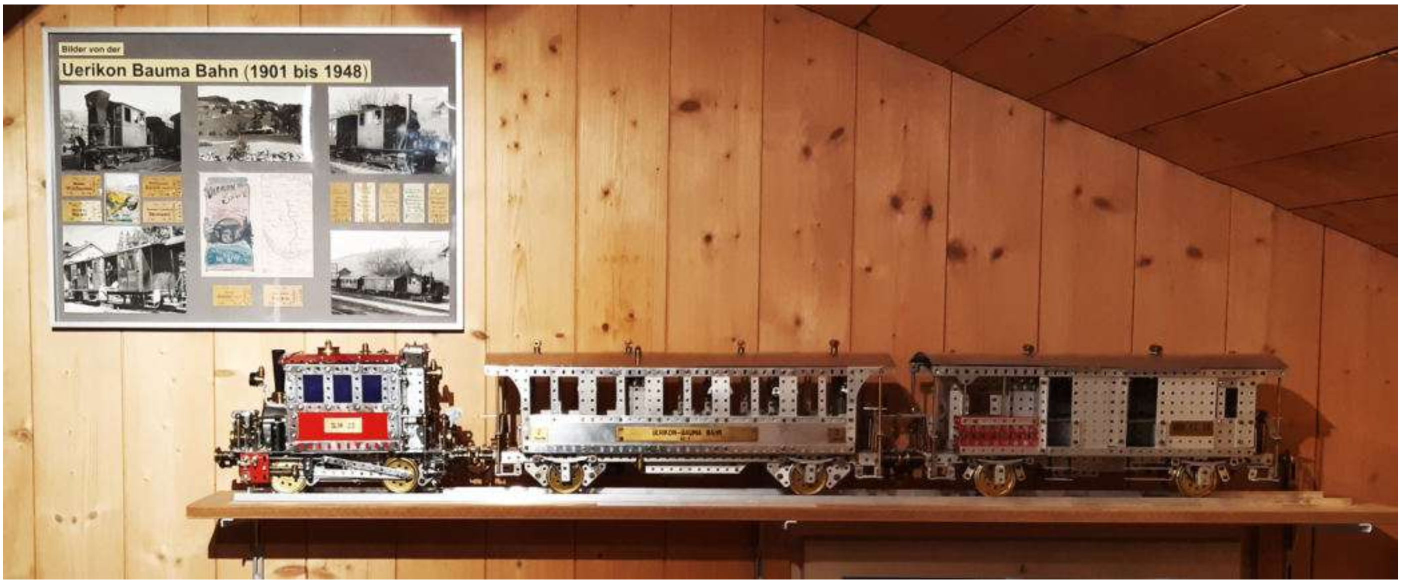


Figure 28 and 29 oblique views

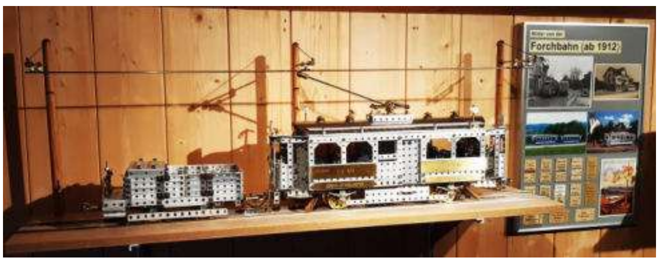




Regional models in Oetwil, Switzerland

Urs Flammer from Switzerland is not only known here in the magazine for his collection of building blocks. He is also well known in his home town of Oetwil in the canton of Zurich. On the first Saturday and Sunday of every month, the local museum in Oetwil am See shows Urs' "masterpieces made of metal construction sets" until October. These models are based on the trains, trams and buses used in traffic in the Zurich Oberland.

Here is a small selection of the exhibits with photos by Urs Flammer.



Urs built the models primarily from the Swiss Stokys kit, from the English Meccano and the German Märklin.