

Schrauber & Sammler

Magazin für die Freunde des Metallbaukastens.

Ich schraube, also bin ich.

Nr. 22 Frühling 2022



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Next meeting of the Friends of Metal Construction Kits:

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

Photos good, (almost) everything good!

A few words about this issue.

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

You have the 22nd issue of our magazine for metal construction kit friends on your screen. With 43 pages - more than ever before.

The magazine will still free of charge 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?

Those who were at the annual meeting in Bebra or have read the report will already know the Culemeyer road scooter with Kaelble tractor for heavy-duty transport on the road. Here is a more detailed report. The Kaelble tractor is also pictured on the front page.

As a continuation of the report from the 20th Mechanics Meeting in Bebra in October 2021, the part with the collectibles that were exhibited there appears here. There was a lot to see.

Meccano had supermodel building instructions for watches and very late also two special watch cases. Before the Second World War, Märklin brought out special clock construction sets with which clocks could be built together with large basic sets. In a manual from the 1950s there were also watch models. An experienced modular designer compares these different clocks competently. He actually built them all.

The first years of the Märklin metal construction kit, including the history at Meccano, will be examined in the next historical report. A link to this

to an even more detailed and extensive version of the work.

The Märklin floating crane is a classic. Here is another version of the model. He was also seen in Bebra.

And as always, there is a look into another drawer of Urs Flammer's exotic collection. This time the related and yet different building sets Staba and Maba.

Finally, we show a handicraft tip of a somewhat more demanding kind. The construction of spoked wheels is described in step-by-step picture instructions.

And now for 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

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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: <https://www.meccanoindex.co.uk/SundS/>

The latest issue is always at the top.

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Kaelble tractor

Culemeyer road scooter and Kaelble tractor

By Jacques Longueville (text and photos)

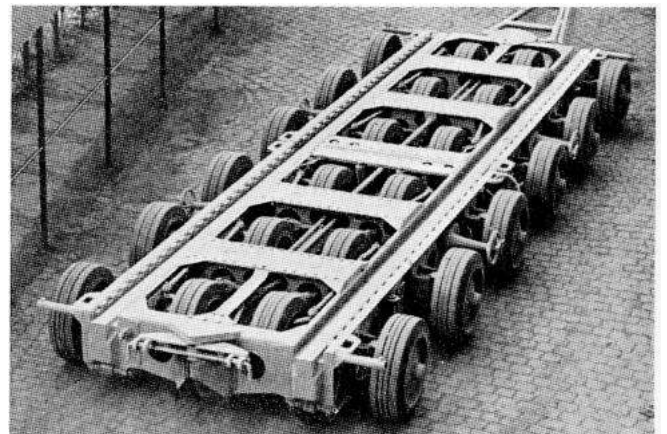
In the mid-1920s, the need arose throughout Europe not to stop rail transport at the freight yard.

Some companies needed their goods on the farm, and organizing their own transport and reloading became too expensive and time-consuming.

Ideas and experiments arose everywhere to transport goods by rail over the road. It was primarily about rail vehicles that could be converted for road traffic or road vehicles that were made rail-ready. The many attempts failed due to a lack of operational safety (derailments) and a lack of performance (load capacity).

Dr.-Ing. At the time, Johann Culemeyer was employed by the Deutsche Reichsbahn as head of department for special goods wagons.

Instead of the hybrid rail or road test vehicles abroad, Johann Culemeyer wanted to build a heavy-duty transporter that was able to pick up a loaded wagon and transport it across country to the customer.



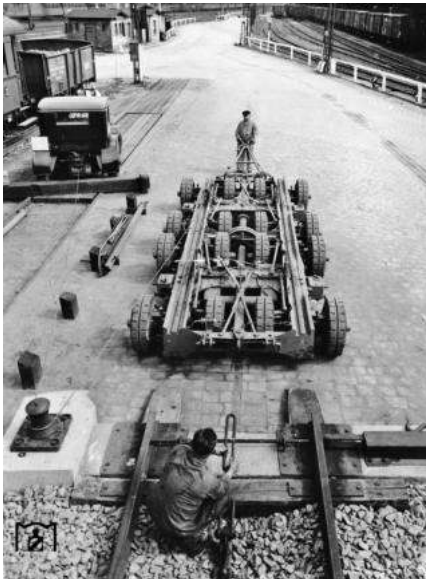
picture 01



picture 02

The heavy-duty transporter was to be a road scooter with a continuous rail track (Fig

01 and 02) which could be driven to a loading dock where the rails fitted the rails of the road scooter exactly and the loaded wagon could be driven directly onto the scooter (Image 03).



picture 03

many rubber wheels, a minimum amount of suspension travel, and a maneuverability ability that made it possible to drive through old city centers.

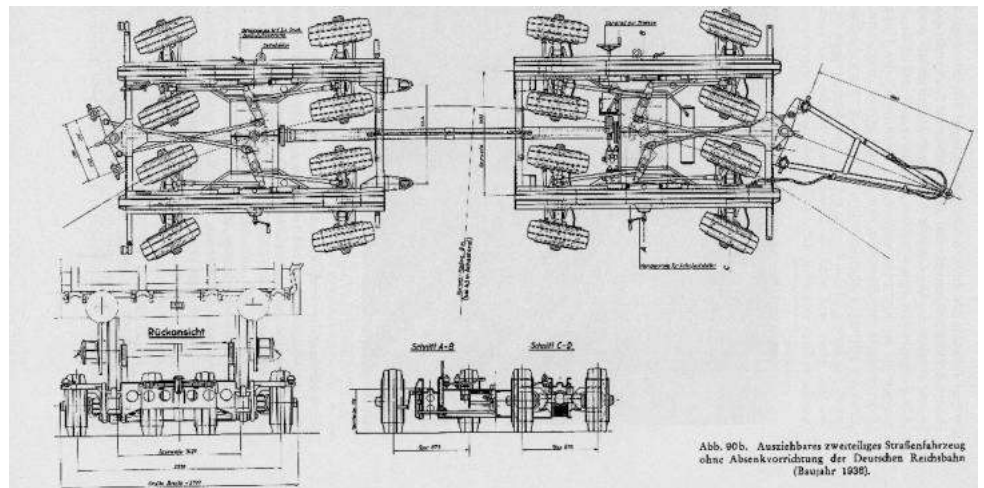
In 1939, Johann Culemeyer wrote the book "Die Eisenbahn ins Haus" (The Railway into the House) on the entire subject (Fig. 04). The book was reprinted in 1987 by the VDI publishing house in the 'Technology Classics' series. It is a very readable and worth reading book in which Johann Culemeyer extensively describes the situation of rail transport at that time as well as the many solutions for extending it to the road and explains it with many pictures.



picture 04

clearly represented, also by means of detailed design drawings (Figure 05).

Culemeyer was himself very active in thinking and working out th of new ones vehicles and systems. He also wrote a detailed load staple with all requirements daily usable transport vehicle. All of its are executed



picture 05

To do this had to learn that a lot high weight of the wagon and the load gently up bring the road be able to talk to very

I particularly liked his large two-part (extendable) road roller with a payload of 80 t for the replica with metal construction kit (Image 01 and Image 02).

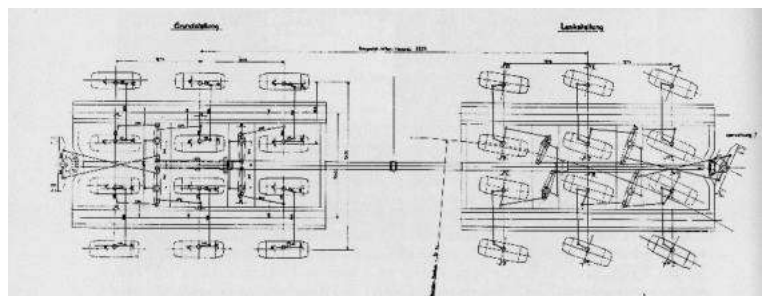
In order to accommodate longer wagons, the two roller halves can be coupled long and short. The scooter has a total of 24 wheels with solid rubber tires.

According to the specification, all wheels are individually steerable and spring-loaded. The construction should be as low as possible.

The steering is the most difficult claim. Due to the limited overall height, no bogies can be used, and each wheel should turn individually. A prescribed driving curve requires compliance with a mean turning circle of 8 m radius.

It is steered by turning the drawbar using mechanical control rods.

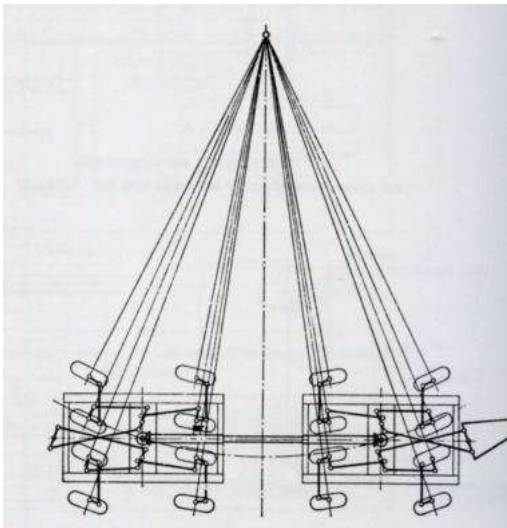
The steering movement between the front roller and the rear roller should be coupled by means of an extendable axle (Figure 06).



picture 06

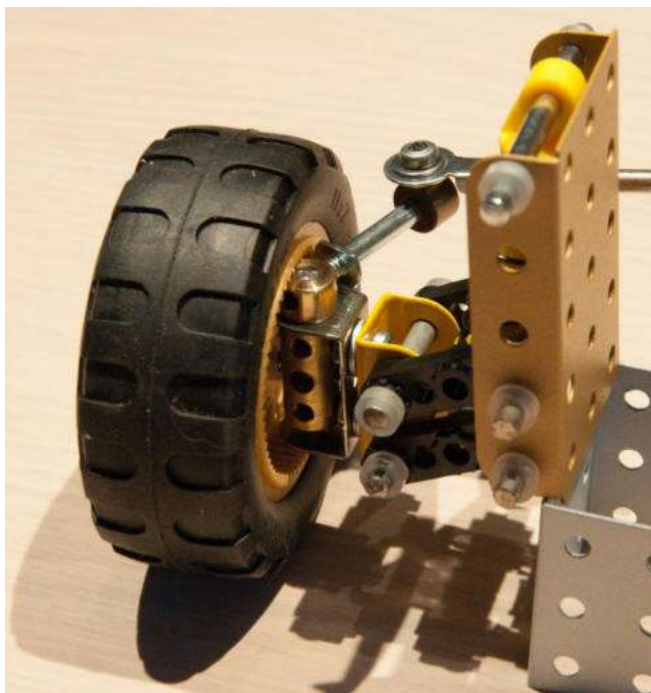
The steering is also very demanding for the replica with metal construction kit. All 24 individually turned wheels must have a common turning point for the vehicle (Figure 07). A design with as little play as possible should be aimed for.

For this reason I chose a relatively large scale, so the play is reduced in relation to the length of the lever arms.



picture 07

However, the decisive factor for the choice of scale was the diameter of the 24 wheels. On the original, the wheels with solid rubber tires are 730 mm, fortunately I have many Meccano wheels in my parts store, with plastic rims and nice rubber tires with a diameter of 72 mm (image 08).

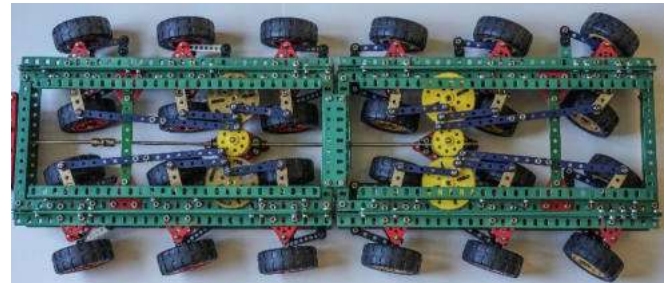


picture 08

This gives a useful scale of 1/10. I had to increase the track width of 1435 mm in the original to 175 mm on the model because of the large steering angles of the wheels. The regular center distances of 1250 mm inevitably became 127 mm (10 x 1/2") on the model.

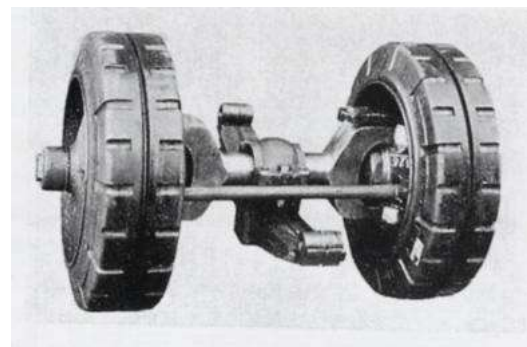
The scale also proved to be very favorable for the replica of the Kaelble tractor.

The basic idea of the street scooter is a platform with a continuous rail track. I set it up very stably as a ladder chassis, with two rows of supports left and right for the 24 wheels (picture 09).



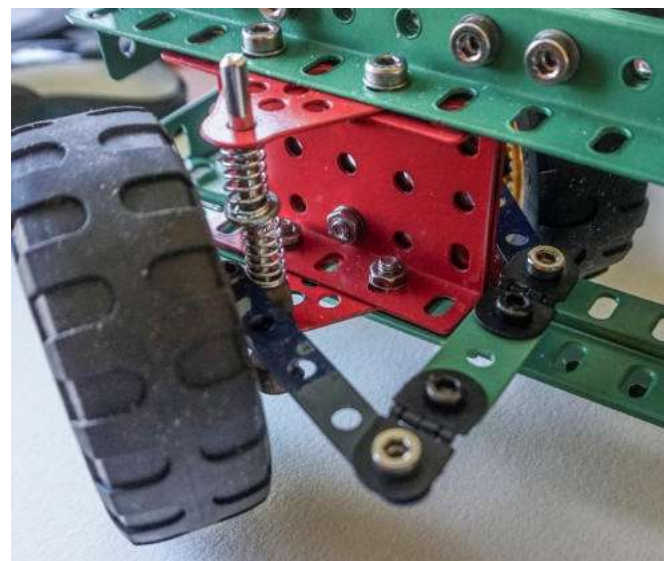
picture 09

On the original Culemeyer, two pivoting wheels with leaf springs are attached to a swing axle (Fig. 10).



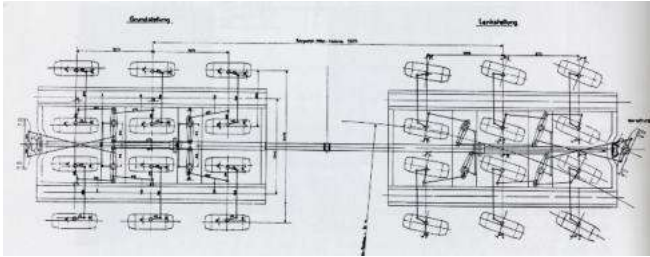
picture 10

The pendulum movement causes a skew and thus a distortion of the control geometry. For this reason I designed an alternative solution for the suspension with vertical studs and coil springs (Fig. 11).



picture 11

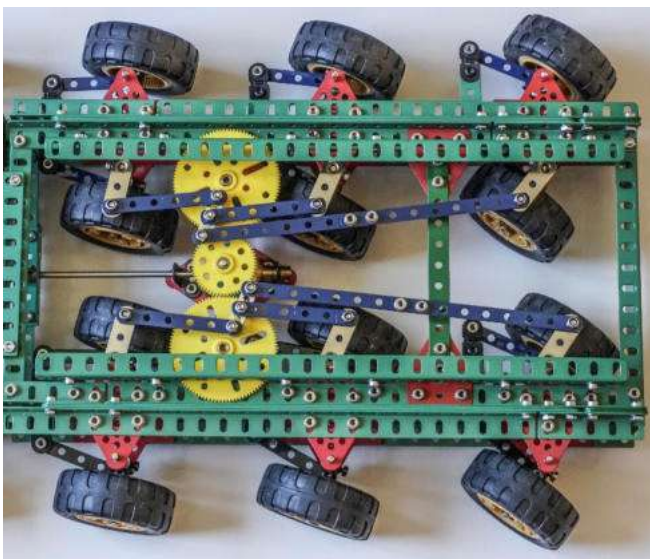
When a single wheel deflects, the tie rod must be able to follow this movement. Because of this, the tie rod has a hinge at each end.



picture 12

As can be seen in Figure 12, each wheel must have its own steering angle depending on its position in the scooter. This is not achieved by choosing the steering levers of the wheels of different lengths, which are all identical. Rather, the difference is achieved by adjusting the control stroke of the control rods. The farther a wheel is from the center of the vehicle, the longer the control travel, and in the same ratio.

When replicating with a metal construction kit, I constructed an approximation of the ideal case by increasing the control lift from the middle of the vehicle $\frac{1}{3}$, $\frac{2}{3}$, and laid out $\frac{3}{3}$ (picture 13).



picture 13

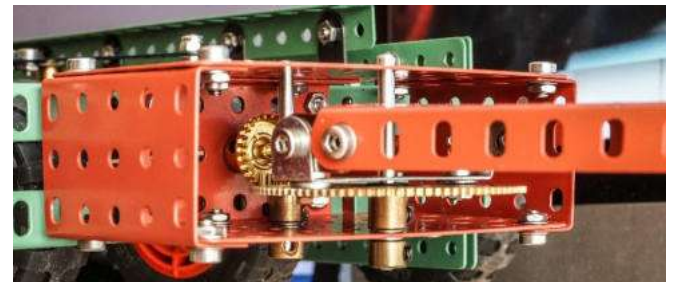
For two adjacent wheels I shortened the tie rod according to the Ackermann principle. I was not able to correct the controls for the right versus left side of the vehicle; in my opinion, the effect on the model is negligible anyway.

Overall, the steering works quite satisfactorily in practice, even driving in a tight circle is smooth.

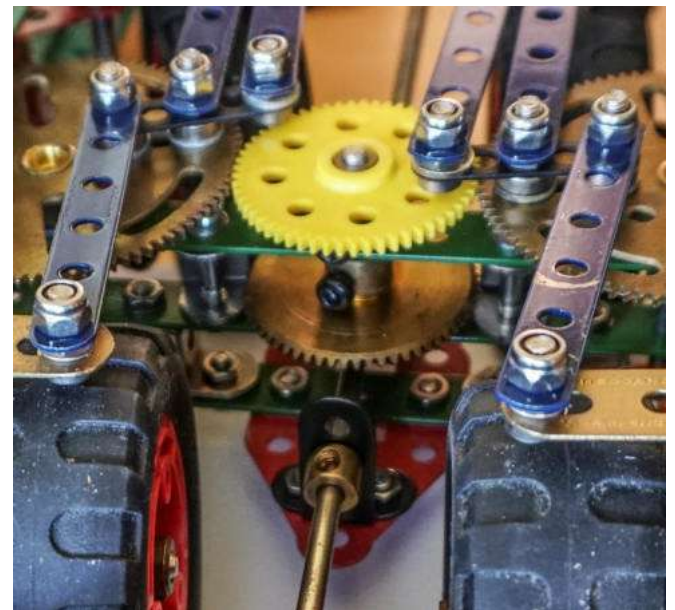
All of this only applies to vehicles with short couplings. The long-coupled vehicle is set on the original Culemeyer using a hand wheel for the respective configuration.

On the close-coupled vehicle, the steering of the rear roller is a mirror image of that of the front roller (Figure 09).

The drawbar has a large, flat gear that transmits the pivoting movement by means of a pinion and a small crown wheel on a longitudinal axis (Fig. 14).



picture 14



picture 15



picture 16

The longitudinal axis drives a stationary axis with a gear wheel in the front roller (Figure 15), as well as a large gear wheel with a control lever on the left and right. At this point, the different control strokes are set (Figure 16). The longitudinal axis extends further and drives a symmetrical mechanism in the rear roller.

The replica of the Culemeyer street scooter was a lovely project, it comes up against the limits of accuracy that can be achieved with metal construction kits, here the use of play-free ball joints could help. The realization of 24 identical wheel suspensions with steering and springs was not a matter of course either.

In the course of the emergence of many different transport rollers are also different traction seem to have been built.

Suitable tugs
were at that time
Market not available.

Culemeyer has himself on the subject of seem to have thought a lot and for use by the Reichsbahn detailed specifications puts.

He distinguishes one Design with single driving axle and one with double driving axle for slopes up to 10%

In the course of development, solid rubber tires and petrol engines were excluded, only pneumatic tires and diesel engines were still ordered.

The highest requirement was the net tractive force on the driving axles. For this purpose, the tractor should be able to be loaded with ballast of up to 11000kg.

A good sanding device with a large supply of sand should improve adhesion in wet or slippery conditions.

The compressed air brake device, whose braking power was distributed between the tractor and the transport roller, should enable the heavy load to be decelerated safely and gently.

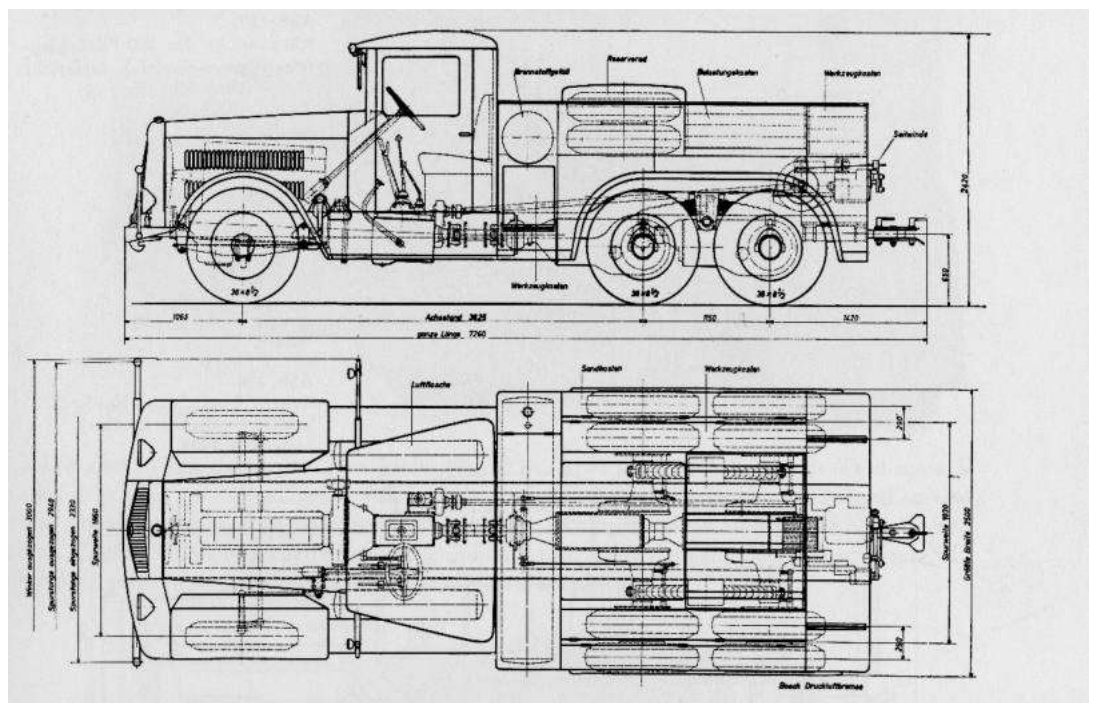
The cable winch should be able to pull the freight wagons onto the scooter with a pulling force of 4500kg.

The maximum speed was limited to 20 km/h, but the crawling speed of max. 2 km/h for maneuvering to the loading ramp was more important.

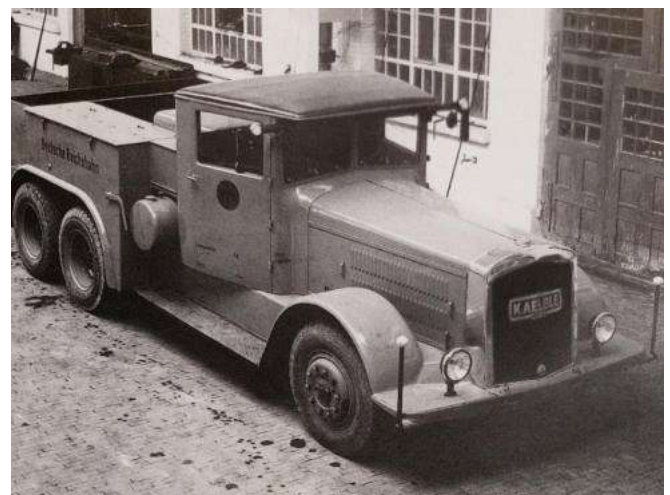
The manual transmission should have at least five closely spaced gears.

In particular, the design with a single driving axle should have a very tight turning circle and therefore an extremely short wheelbase.

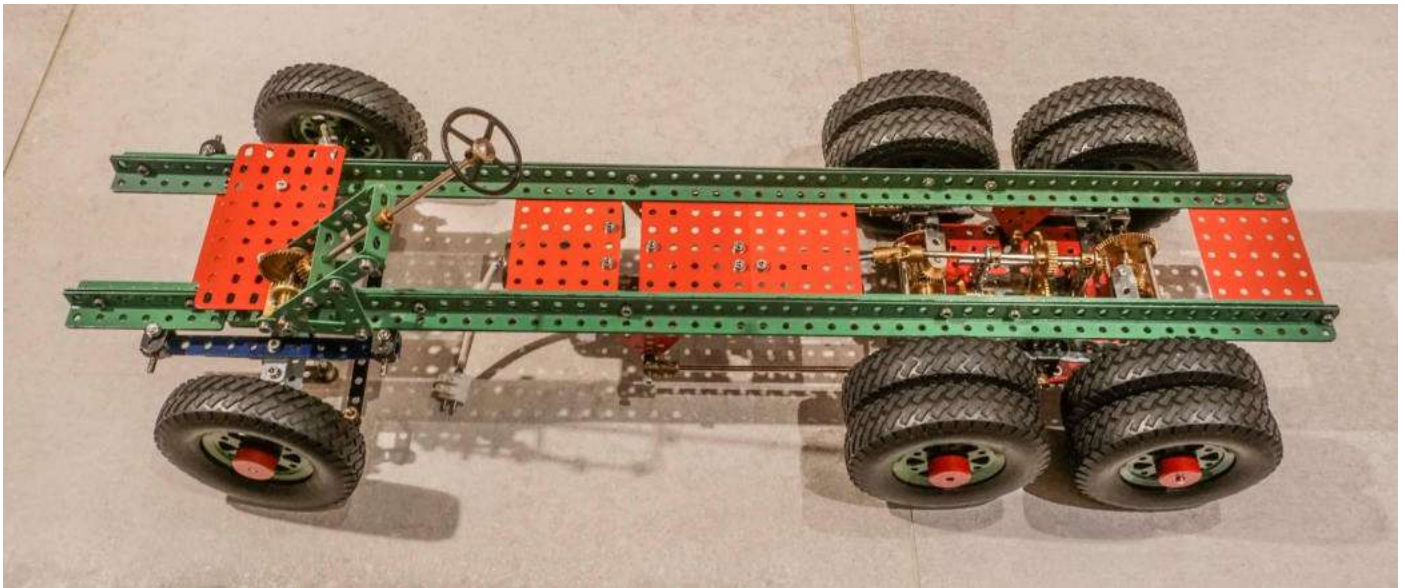
For the replica I chose a Kaelble tractor with two drive shafts and 100 hp (built in 1937) (see pictures 17 and 18).



picture 17



Picture 18

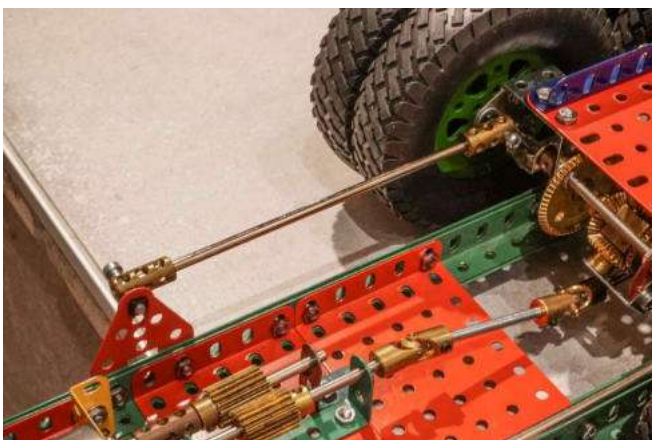


picture 19



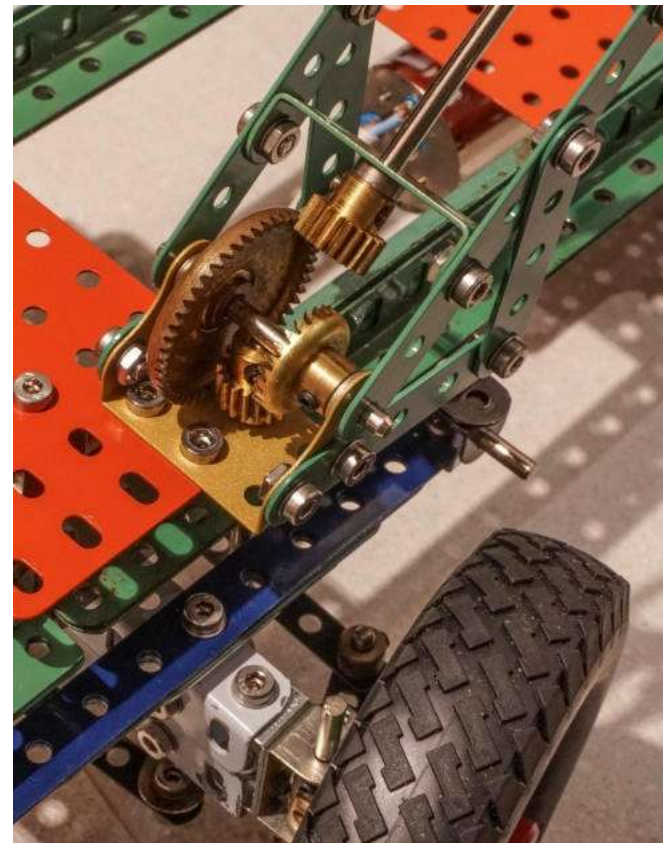
picture 20

Pictures 19 and 20 show the chassis and the drive of the double axles. Figure 21 shows the push rods with which the very high thrust forces are transferred to the chassis.



picture 21

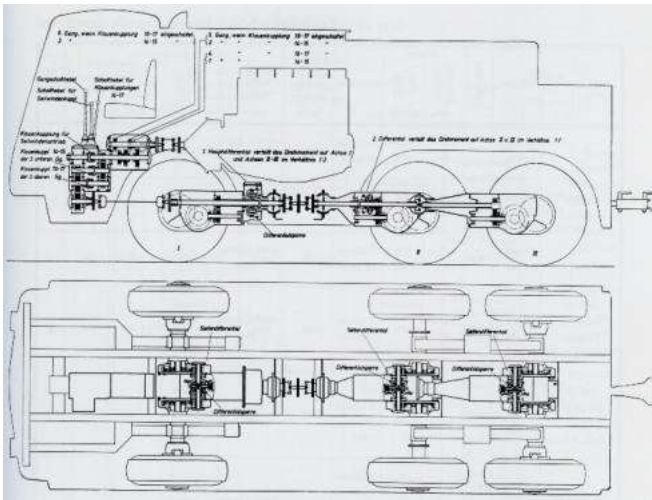
Figure 22 shows the compact translation of the steering movement.



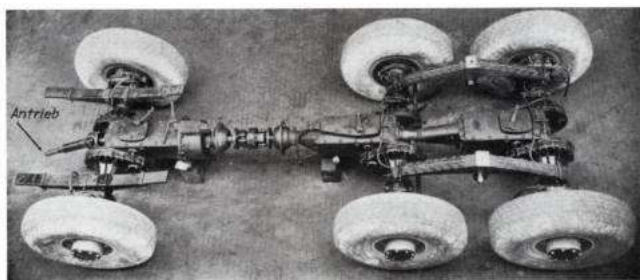
picture 22

Later even larger tractors with three drive shafts and 180 hp were built. The latter, with their driven front and rear axles (Figs. 23 and 24), would also be very interesting to build as a model.

I took all black and white pictures from the VDI book 'Die Eisenbahn ins Haus' by Johann Culemeyer. All color pictures are mine.



picture 23



picture 24



picture 25

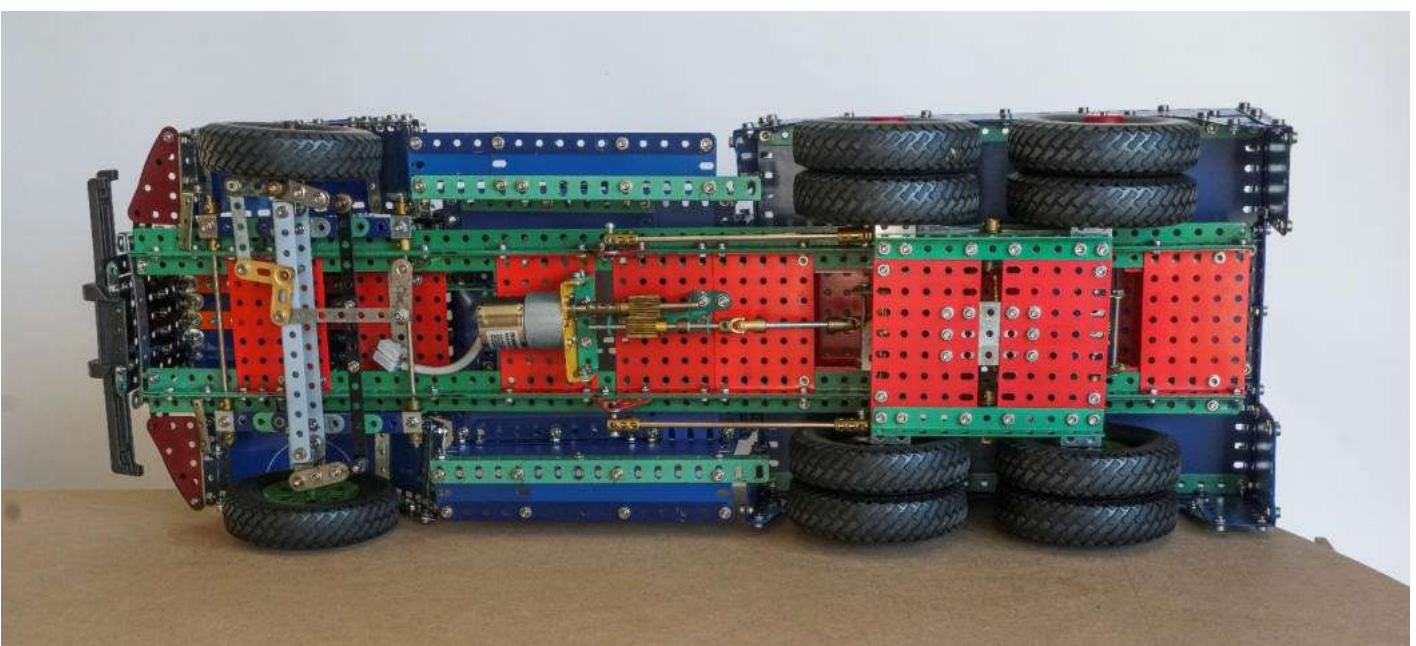


picture 26

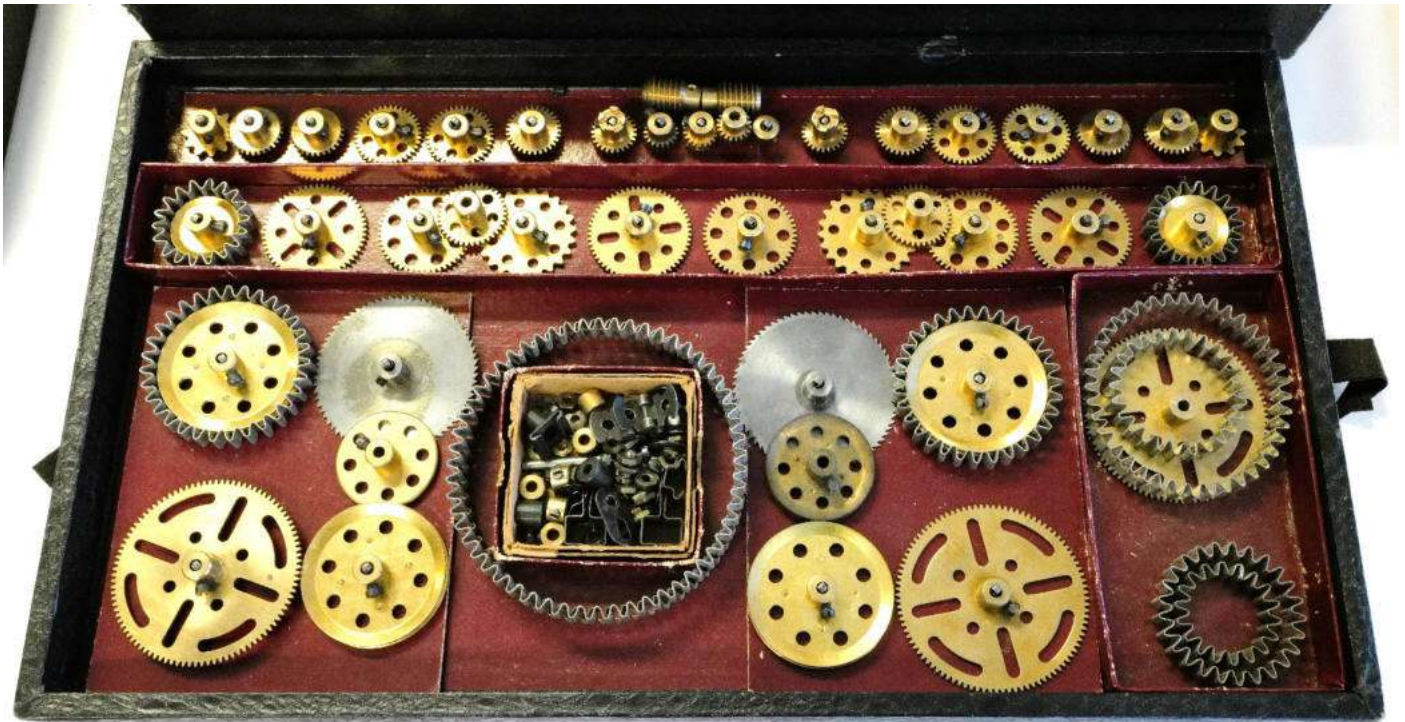


picture 27

Pictures 25 to 27 show different views of the Kaelble tractor. The body is a mixture of Märklin and Meccano parts, the wheels are from Merkur. In picture 28 the tractor is shown from below. The double rear axle and the steering of the front axle can be clearly seen.



picture 28



20th Mechanics Meeting in Bebra 14.-17. October 2021-Part 2

By George Eiermann

As in previous years, I present the collector's items such as construction kits or individual parts separately.

The lead photo shows the top insert of a beautiful Märklin 105/2 from **Stephen Ahlbrand**. Here with the base and lid:



Stephan also had three Märklin 101/1 with him:



With a Stabil box 58, Stephan proved that he doesn't just collect Märklin...



and several very well-preserved Olympia sets from the GDR in the early post-war period:



Karl Bopp presented, as always, Märklin sets that belong together thematically:

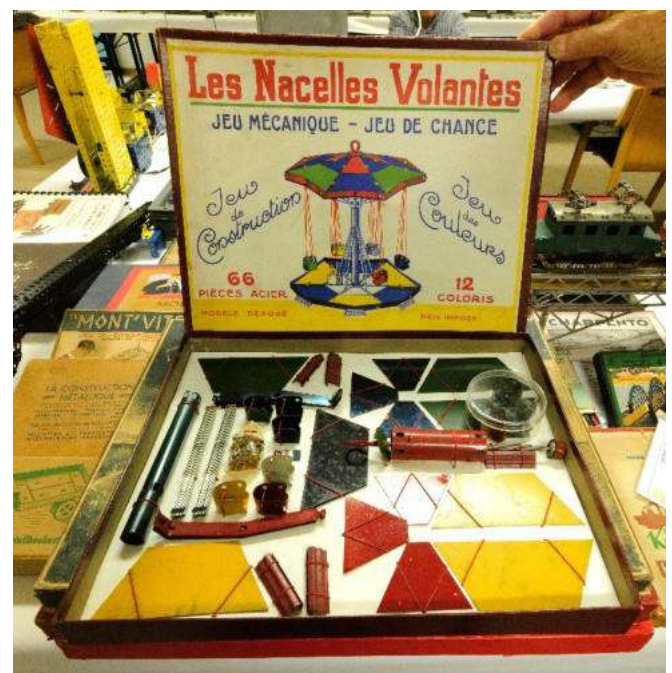


Märklin Elex was more of a teaching and experimentation set, so the Märklin school construction set fits

was created for or together with the Klett school book publisher, good for that:



Jean Pierre Guibert brought a large collection of little-known building sets from France:





With the many rare building sets by Jean-Pierre Guibert, I will omit a detailed description. By enlarging the view of the pdf document on the screen, one can identify the manufacturer or brand. If you would like more information on this, please contact Jean-Pierre directly: http://mecca-clocks.fr/accueil_autres_systems_01.htm

Note on the Geobra box above: This company now makes Playmobil.



Jürgen "Stabil" Kahlfeldt introduced us to more than 100-year-old Stabil treasures:



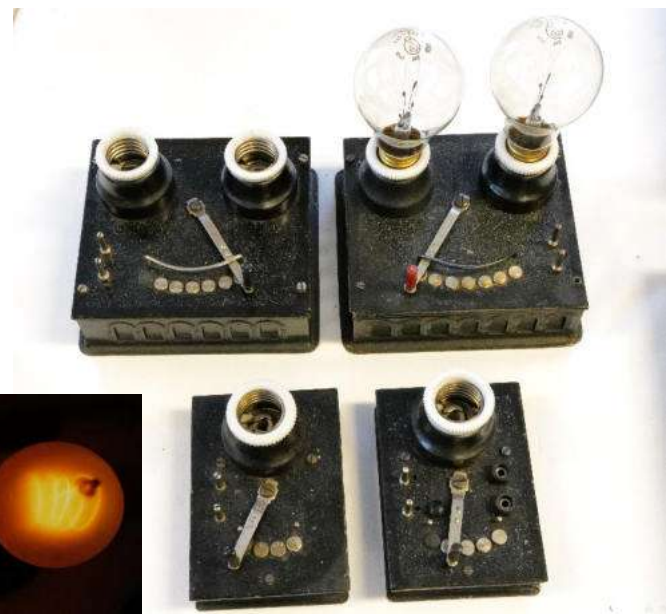
Since the exhibitors of the collectibles are arranged alphabetically, comes **Uwe Srenk** with its worth seeing pre-war Märklin exhibits at the end:



watch kit



Electrical kit 302



Four different series resistors and regulators with carbon filament bulb (inserted on the left).



The watch cases from Märklin and Meccano

By Bernhard Doll

Suggestions for correctly running clocks can be found in the programs of several metal construction kit companies such as Märklin, Meccano, Mignon and Trix. But only Märklin and Meccano have each released two construction sets on this subject, not in step and under different circumstances. As far as can be seen, these boxes have not yet been treated together. Taking a look at them, including the watch programs of the two companies, is the subject of this presentation.

Marklin

At the beginning of the 1920s, Märklin brought out a construction set 102 for the "young builders" (Märklin, all quotes Märklin or Meccano) for building a clock "with the movement-giving spring". It was a twin birth, because at the same time another set 104 for a model with an electric drive as a magnetic vibrator appeared, but it was soon taken off the market, Fig.1. Box 102 was not self-sufficient as an additional box. A basic box from stage 3 and the large spring motor 402 were required as a wall or grandfather clock, Fig.2.

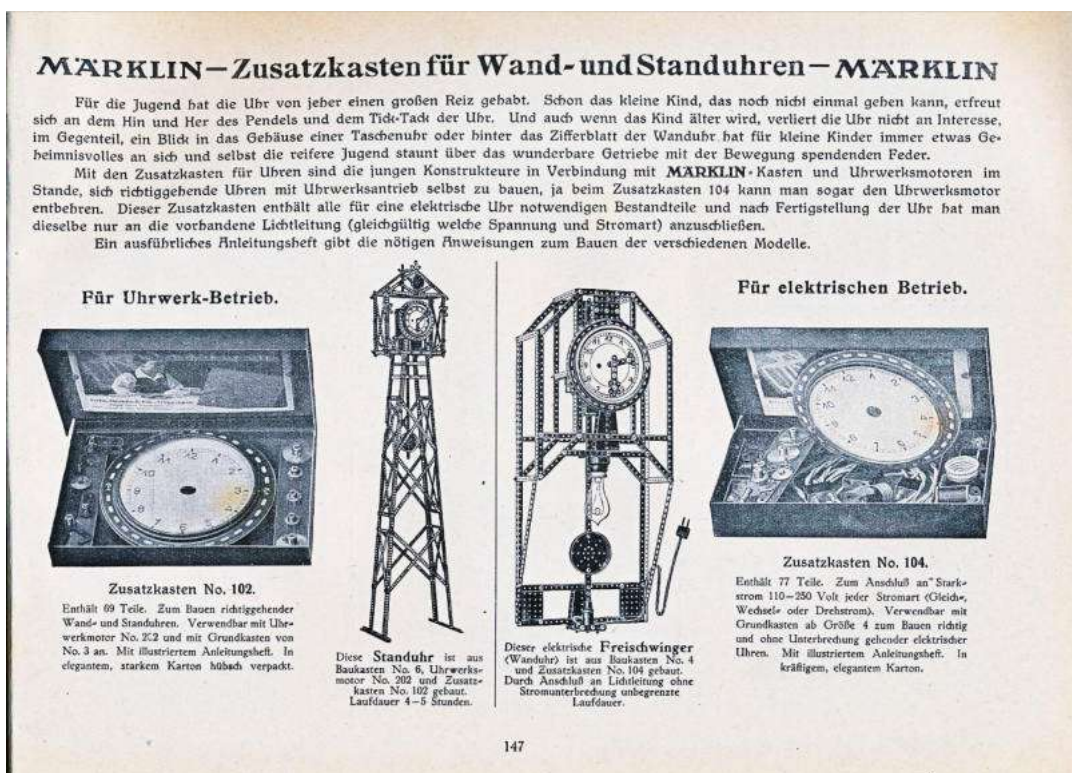


Fig.1: Instruction 71, printing mark 213, page 147

Fig.2: Grandfather clock

There was also a strong boost of motivation: The young mechanic "sees his skills and his enthusiasm rewarded in the most wonderful way and the self-made clock will be a highlight of his achievements."

With its simple construction and the modules drive, escapement, pointer, the young architect got along well. The engine provides the drive. The case 102 contains special parts for the escapement and hands, Fig. 3a: the lever fork 221, Fig. 3/4, which engages radially with the escape wheel (round plate with adjusting rings), and for the hands the change wheel solution 223/224,

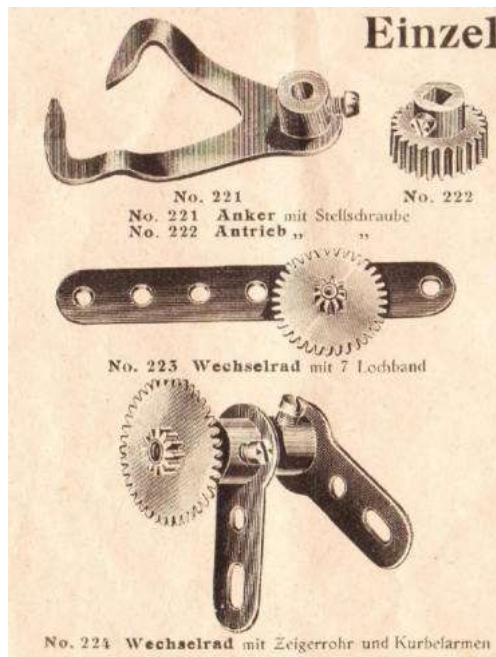


Fig.3a: some special parts of the watch case (extract from Instruction 74, printer's mark 5322, page 10)

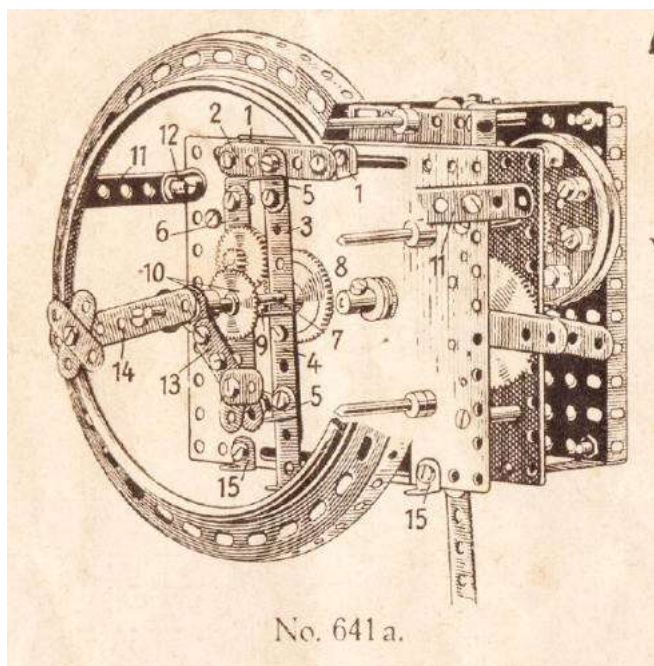


Fig.3b: Detail of the movement, instructions as in Fig.3

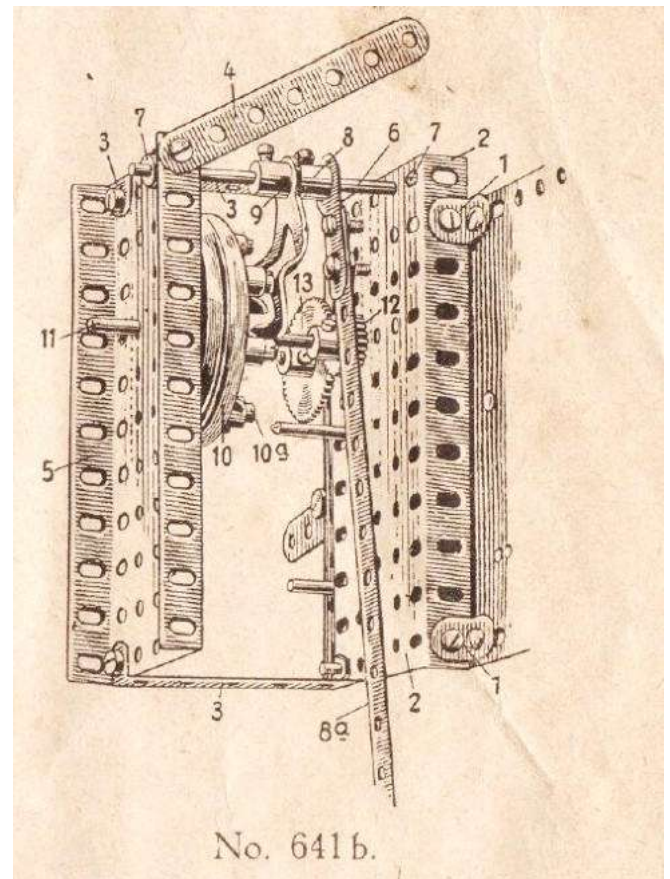


Fig.3c: Detail of the movement, instructions as in Fig.3



Fig.4: completed grandfather clock



Fig.5: completed grandfather clock

The change wheel fastened to the perforated band 223 engages twice with the change wheel 224 pushed onto the pointer shaft, to which sleeves – small tubes pushed one on top of the other – with the crank arms for the hands are fastened, Fig. 3b/5. The gear ratios result in a ratio of 1:12.

Despite the cumbersome winding of the motor by removing the dial and pinion 222 from the winding pin, as well as the hard metallic movement as a result of the anchor fork striking the adjusting rings, case 102 has lived up to Märklin's claim. "102" was one of the classics of the pre-war models.

The verdict on the next watch case 103 N is not so favorable. At the beginning of the 1930s, Märklin tried again with a magnetic oscillator with an electric drive as a grandfather or table clock; Fig.6 and 7.

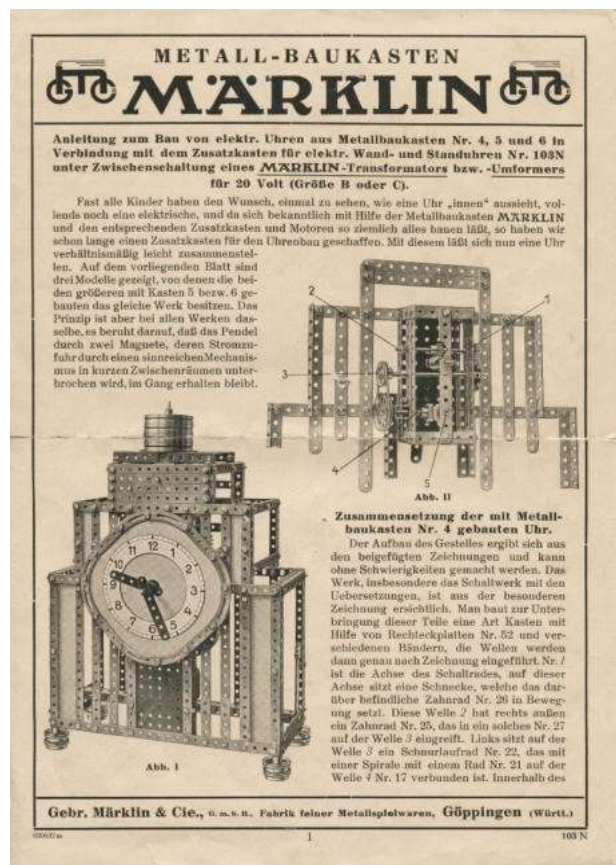


Fig.6a: Instructions for box 103N

This time, too, 103 N had to be purchased as an additional set to one of the basic sets 4-6. It contained two magnets, sliding contacts, cables and the changing wheel solution mentioned for the hands.

The advanced architect had to make a little more effort to build it. The drive: The magnet attached to the lower end of the pendulum and thus the pendulum are set in motion by current impulses, Fig.7b.

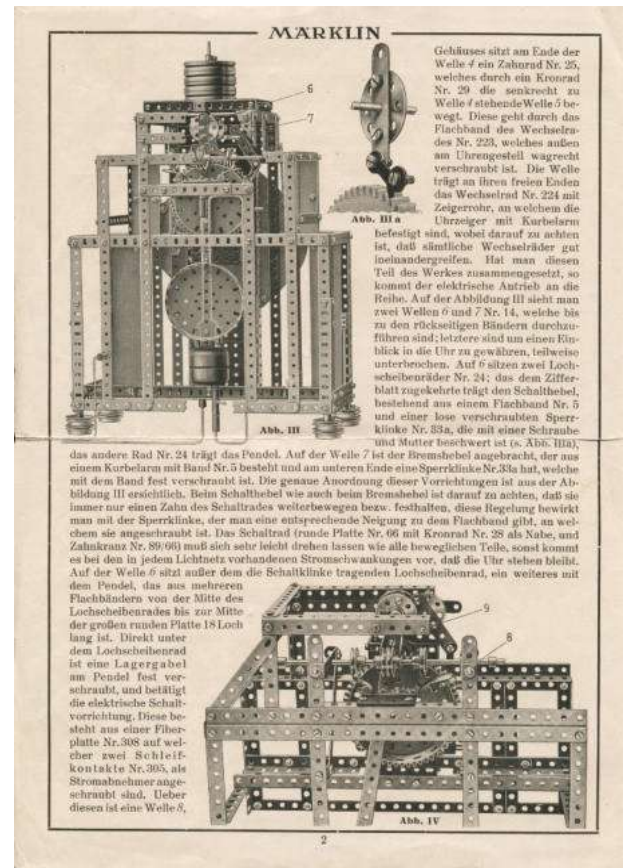


Fig.6a: Instructions for box 103N



Fig.7a: Table clock from the 103N construction set

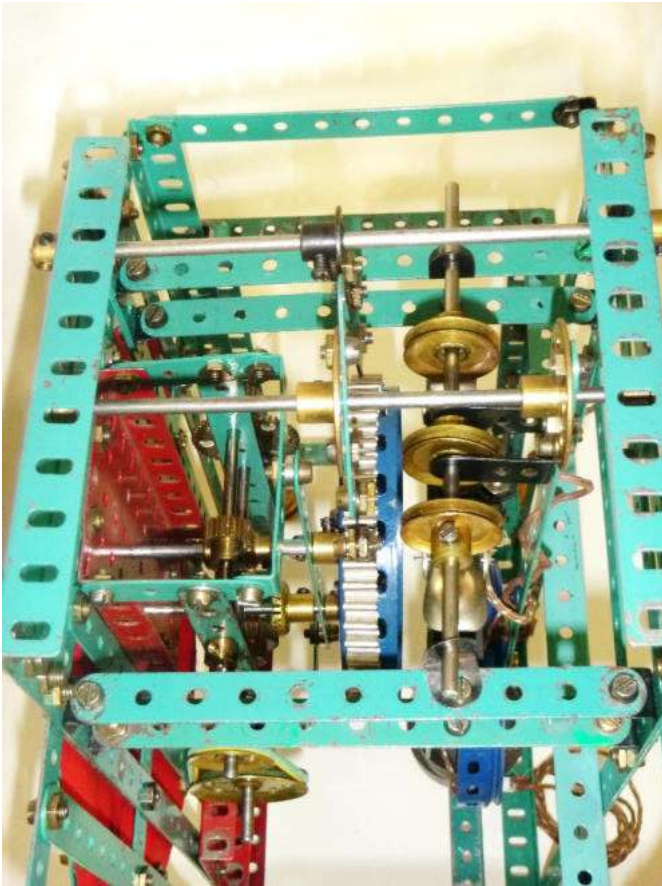


Fig. 8: Table clock from the 103N construction set, view from above

There were no model suggestions or individual parts suitable for watchmaking in the range, probably in order not to reduce sales of the additional boxes. Unfortunately, box 102 was not reissued in the post-war period. An alarm clock with an electric drive appeared in instruction book 171 b, 1959, Fig. 9.

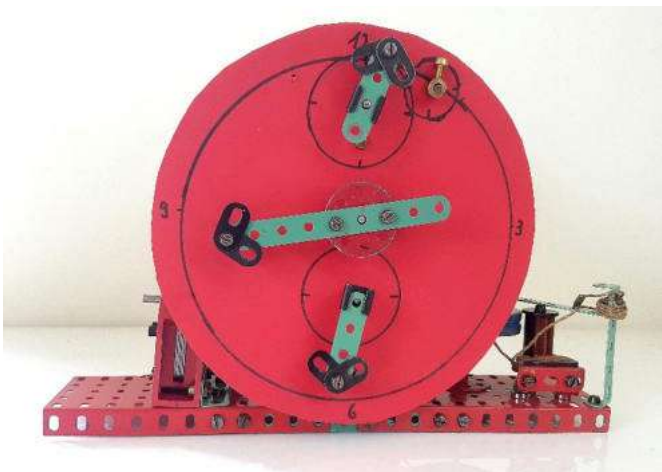


Fig. 9: Alarm clock with electric drive from instructions 14930

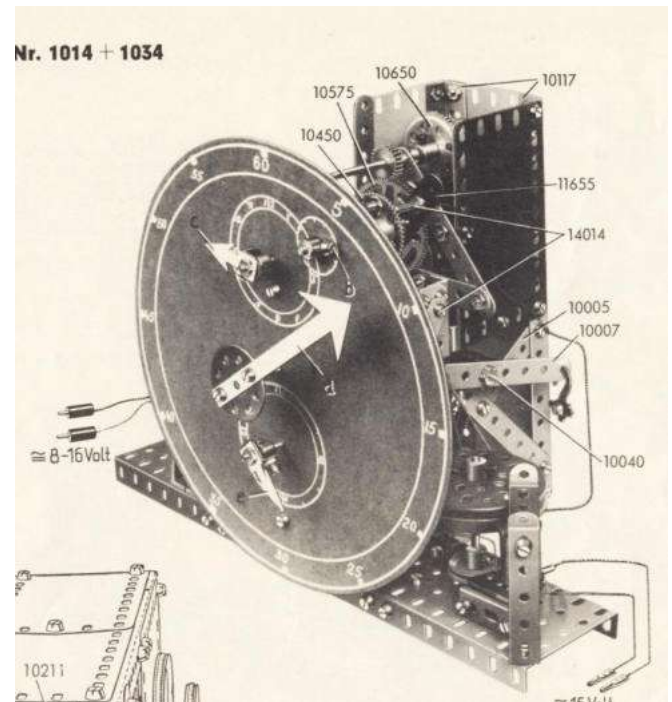


Fig. 10: From instructions 14930 from 1963

In a small space, the small, brave motor 1321 G keeps 21 wheels and two worms for the three hands and the alarm clock running on 12 shafts, Fig. 9/11 (from below sec., min., hour, right alarm clock), one screwdriver exercise.



Fig. 11: Alarm clock, bottom view

Meccano

Märklin did not share Meccano's motto of offering all parts in the basic sets or for individual sale with his additional sets. In Liverpool one looked in vain for watch cases. There are over 30 suggested models in the instructions and in the Meccano Magazine for all drive types and levels of difficulty. As a "flagship" the Grandfather Clock should be mentioned, which Pieter Bracke in "Schrauber und



Fig. 12: Grandfather Clock (older photo)

Collector", issue 16, 2020, shown here in a somewhat more modest appearance, Fig.12.

However, relatively simply designed models for the Meccano Boy also come into their own, such as the Mantel Clock operated with a spring motor, which appears as a table clock in a stately case with Roman numerals, figs. 13/14.

At the beginning of the 1970s, Meccano "skinned" again. Two points from the new program are of interest here: the inclusion of plastic parts in the range and the offer of self-sufficient themed boxes that contained all the parts for a model, such as the Clock watch boxes



Fig.13: Table clock / mantle clock



Fig.14: Table clock / mantle clock(Back)

Kit I and Clock Kit II. Unfortunately, their lifespan was only a few years. Conceived as wall clocks, they are presented here as grandfather clocks without changing the clockwork, Fig.15.



Fig.15: Clock Kit I and Clock Kit II

Clock Kit I is integrated into a frame of Meccano F components from the blue and gold period. Clock Kit II was mounted on a rack of Stokys parts and Märklin trim panels for color matching.

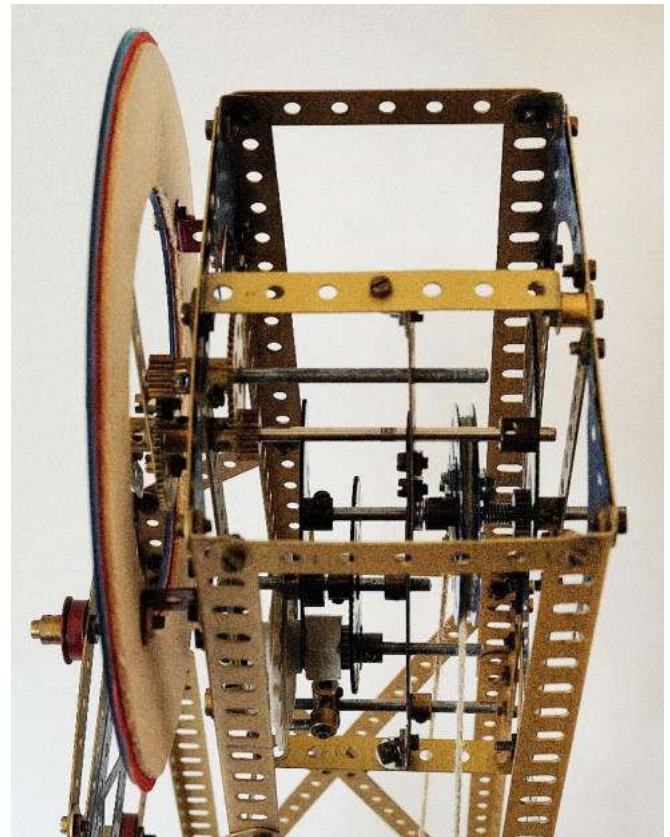


Fig.16: Clock Kit I (side view)

Clock Kit I: Fig. 16 shows a glimpse of the clockwork, on the right the drive module with the wheel for the drive cord - composed of three round plates and two perforated disc wheels as well as a spring clutch preventing reverse movement.

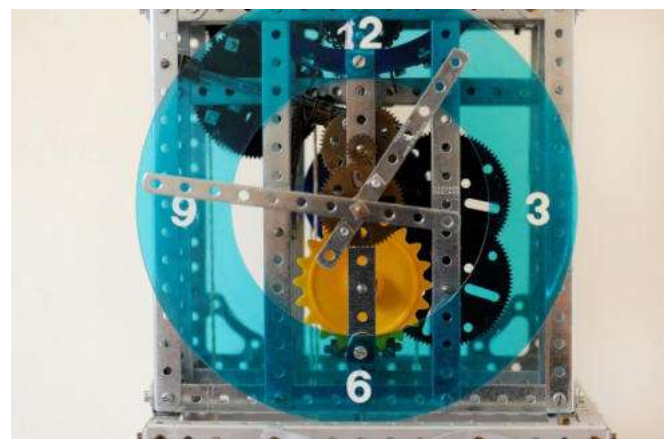


Fig.17 Clock Kit I (front view)

Drive and escapement are connected to each other via two intermediate transmissions. The latter consists of a plastic escape wheel, into which two locking pins attached to the pendulum shaft engage, Fig.17. A simple change wheel solution was found for the ratio of the two hands: A 19 Z pinion screwed onto the minute hand shaft is in mesh with a 57 Z gear wheel, on whose shaft a 15 Z

pinion is connected to the 60T gear wheel of the hour hand, which is loosely fitted on the minute hand shaft, Fig.18.



Fig.18: Clock Kit I gears

The design tailored to the Meccano Boy, the smoothly swinging pendulum, the quiet gait and the comfortable winding of the drive cord, these advantages put Clock Kit I in the first place of the models presented.

Clock Kit II, Fig. 19: A clock with a striking mechanism is one of the rare "speaking" metal kit models in which the acoustics are part of the construction, i.e. not an accessory like the music box integrated into a merry-go-round.

A detailed construction report for Clock Kit II would be the subject of a separate article in "Schrauber und Collector". A few general remarks must suffice here. Watch part and striking mechanism part are separate, only connected via the two release and locking levers (clapper) mediating between the hour hand module and the striking wheel, Fig.20/21.

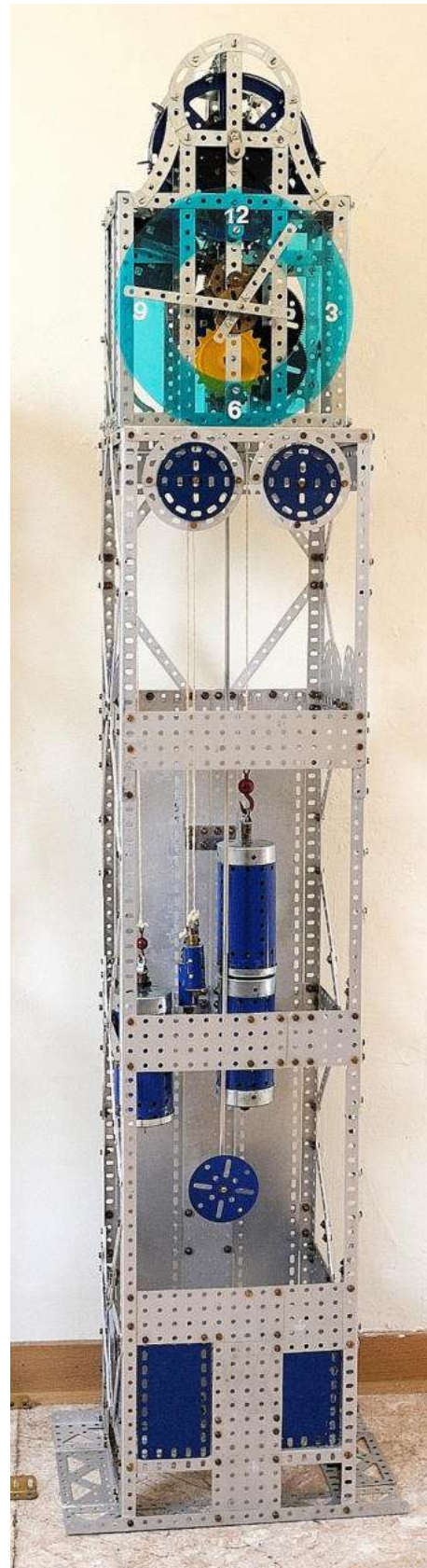


Fig. 19: Clock Kit II

Since the clock part is almost identical to that of Clock Kit I, the following comment focuses on the striking mechanism. This only strikes the full hours;

Strike the hour from once for 1 o'clock to twelve times for 12 o'clock. In a cycle of 12 hours, 78 beats are executed. The energy for this is supplied by the weight drive, the concept of which corresponds to that of the clock part.

The striking wheel in the center consists of two plates screwed together with slots on the sides for adjusting the twelve angle pieces regulating the movement and rest of the wheel, Fig. 20/21. When released or blocked by the clapper, these function alternately, the one on the rear wheel for the odd hours and those on the front wheel for the even hours. The clapper rests on screws, two of which are attached to the gear wheel of the hour hand and two to the perforated disc wheel attached to the hand shaft opposite, Fig.20/21.

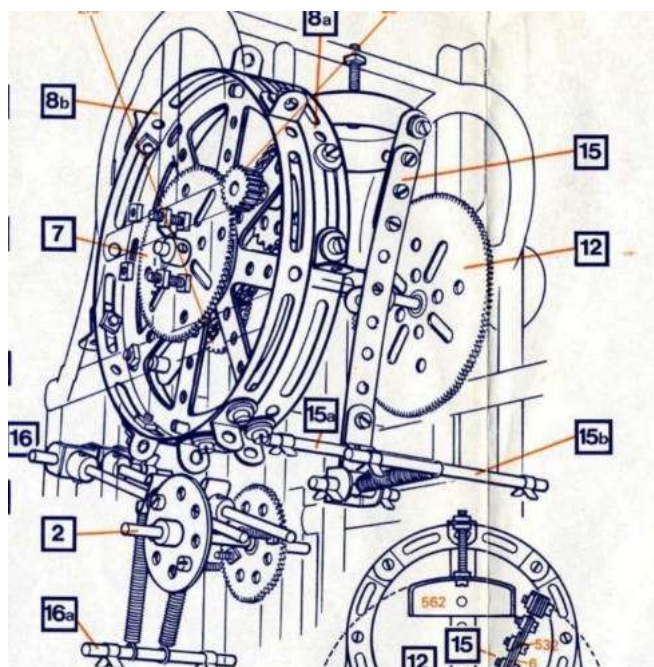


Fig.20: Instructions for Clock Kit II

Fig. 20 shows the construction of the bell. Its clapper is moved by a guide bar screwed to the shaft of the striking wheel in accordance with the rotation of the striking wheel. The large 133 Z gear wheel, Fig. 20, which is also located on this shaft, has a double function: absorbing the drive movement and supplying the windscreen with high speed, which it needs as an aerodynamic brake to reduce the speed of the beater wheel. Fig.22.

Thanks to the excellent instructions, even mechanics without a watchmaker's apprenticeship can dare to build Clock Kit II. In addition, however, the initiation and coordination of the blows on the

exact time is a challenge to the patience and technical empathy of the "advanced Meccano Boy".

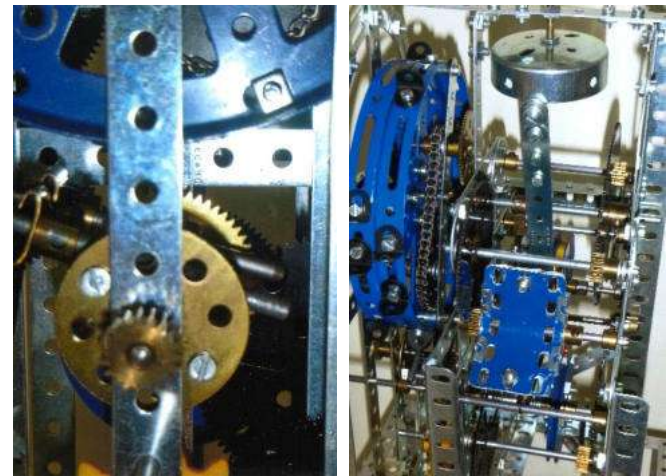


Fig.21 Clapper

Fig.22: Windbreak

resume

As successful contributions to clock model making, the 102 and Clock Kit I sets meet the skills and expectations of younger mechanics in particular. With the 103 N box, the magnetic drive, which consists exclusively of metal box parts, has reached its limits. It is with good reason that special parts outside of the modular metal system are used for the drive of the magnetic oscillator presented in Meccano Magazine. Clock Kit II gives a good insight into how a wheel hammer mechanism works. Its operation requires a higher level of model building experience.

In order to build models, clocks or whatever, you need a sufficient assortment of parts, but no additional or themed sets. Their existence is based on economic and psychological reasons. First, to increase sales and customer loyalty - understandable goals of the companies. The second reason leads to the question:

Why are there such boxes for clocks and not for the extended model families of vehicles and cranes? There are two possible explanations: On the one hand, the intention to go beyond the model area to the world of use, because: "Meccano is more than a toy". Watches are an ideal group of models here. On the other hand, it is the ideal value, the nostalgia and the fascination that these old cultural testimonies have and encourage them to replicate them.

An old Meccano Boy hopes that this will remain the case and that perhaps one or the other reader will be encouraged to build a "time fragmentation".



The MÄRKLIN metal construction kit - its history and the first years

By Norbert Klimmek

This is the title of a paper that, after ten months of intensive research into and from old documents, study and restoration of contemporary metal building sets, editing of images and scans, and writing over 50 pages of text, has resulted in a 90-page presentation of my current knowledge have raised on this subject.

This summary essentially follows the structure of this paper.

1. The way to the metal construction kit

In this chapter, essential preparatory work that can be found later in the construction kit is mentioned and partly presented with the help of illustrated examples. It is about:

- 1888, model kit by Gustav Lilienthal
- 1892, bridge construction kit by Julius Weiss
- 1895, metal construction kit by Emil Jenss
- 1901, Mechanics Made Easy by Frank

Hornby

- 1904, Walther's engineer Bauspiel and
- 1911, Walther's Stabil, by Franz Walther

- 1912, American Model Builder, Francis Wagner

Important inventions of these pioneers are

- evenly perforated wood/metal strips
- Bolt and nut connections
- Shafts as axles for wheels and rollers
- Axle and wheel connections
- gears and worms

Among the inventors named, Frank Hornby is the one who had the greatest influence on the Märklin metal construction kit.

2. Meccano in Germany

2.1. 1908/14, pre-war period

In 1908, Hornby Mechanics renamed Made Easy Meccano, thereby establishing what is probably the world's most successful metal construction kit system. This system consisted of sets #1-6 of increasing size and five supplement sets #1A-5A to expand each set to the next higher level.

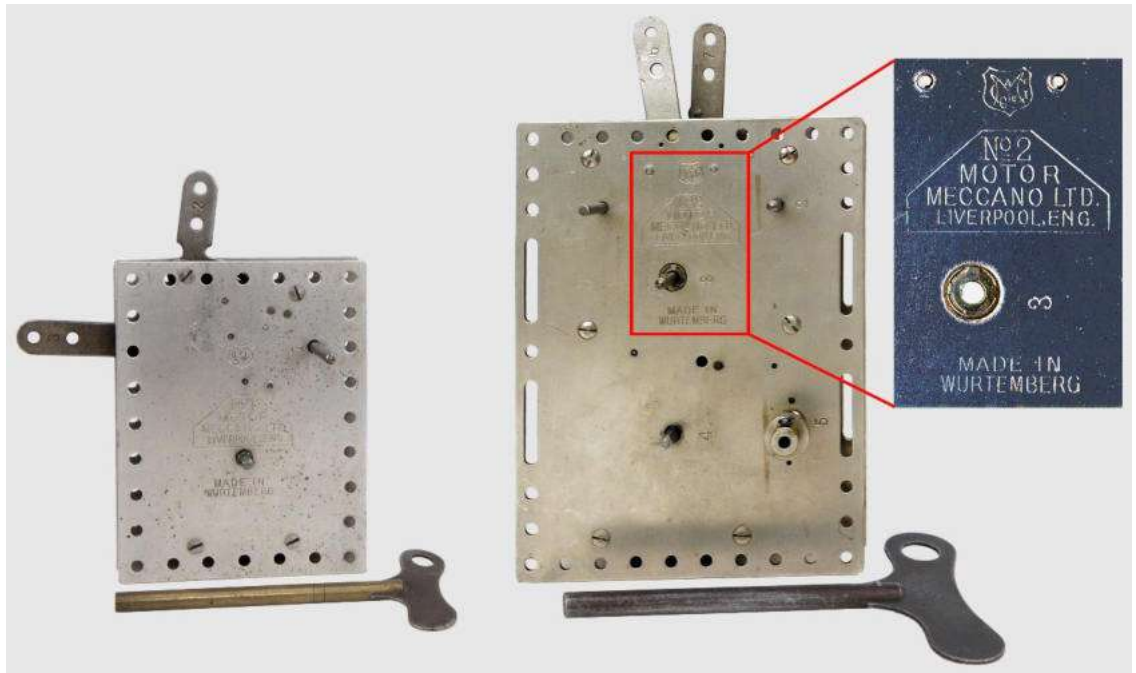
In 1908 he began exporting his sets to the Empire's colonies, the United States and European countries. With sales for continental Europe

was the company
brothers Weimar
in Rotterdam be
dare.

the components was
the in Liverpool/
england made,
the kits there
ready-made, with
Instruction booklets in
of the respective country
deslang provided
and then export
animals, including
to Germany.

From year to year
new construction
add and

further equipping the boxes. Of particular
importance were the perforated rectangular and
sector plates introduced in 1911, which Hornby
immediately protected by patents/utility models.



1912: Meccano clockwork engines #1 (small) and #2 (large)

number book, in which Ehmann is listed in July 1912 as the orderer of the clockwork engines No. 7332/1 and /2, which are later sold by Meccano as engines No. 1 and No. 2.

As a result of the increasing number of counterfeits, Hornby began in 1911 to gradually mark the components with the embossed brand name MECCANO or a patent number.

In mid-1912, Hornby opened its own branches in Paris and Berlin and from then on handled continental sales independently. In order to draw attention to his construction kits, he broke new ground in advertising by not only advertising in specialist magazines for dealers, but also in magazines and weekly magazines for the general public.

The Meccano system itself developed splendidly. From 1908 to 1913, the number of different individual parts increased from 36 to 55. The length of the instructions booklet increased from 52 to 100 pages in the same period.

2.2. 1914/17 Meccano Berlin during the war

On August 4, 1914, with the beginning of the state of war between Great Britain and Germany, all trade relations between the two countries came to an abrupt end.

The Meccano branch in Berlin was thus exempt from all deliveries from Liverpool, in particular the new boxes ordered for the 1914 Christmas business



1910: Cover of the MECCANO Handbook for Sets #s 1-6

In 1911, the Gebr. Weimar included the competing product The Young Mechanic, a brazen Meccano plagiarism, in their range, whereupon Hornby terminated his cooperation.

For Meccano sales in France, Hornby was able to contact the Parisian Märklin branch Maerklin Frères & Cie. under their manager Carl Ehmann, who included the Meccano range in his Jouets Maerklin catalogs in 1911/12.

This episode is significant in that Carl Ehmann organized the production of Märklin clockwork motors for Meccano. That comes from the Märklin

and components cut off. The initially acting managing director James Paul Porteus therefore had to see how he could cover the goods ordered by the dealers with his stock, as long as they had not been canceled as "enemy products".

This phase ended at the beginning of February 1915 when Martin Hirschfeldt, the compulsory administrator appointed by the Reich government, took over the Meccano branch in Berlin and replaced Porteus, who was then interned.

As far as the documents and the Meccano construction kits that have survived from that time allow, Hirschfeldt did his best to continue the business in a positive way. To do this, he had missing parts made by German companies and the instruction booklets from 1913 reprinted.

The Meccano construction kits sold at this time can be identified by the lettering Meccano GmbH Berlin C2, Burgstr. 28 ... and the brass components that will soon be replaced by versions made of steel. In addition, some of the previously black oxidized components are now painted black.

These kits are filled according to the parts lists valid in 1913 and only contain the components known at the time.

During this time, Märklin continued to deliver clockwork motors to the Berlin Meccano branch, as can be seen from the instruction sheet that is now enclosed, on which the numbers of the Ehmann order are listed.

From July 31, 1916, British companies could be liquidated, ie shut down or sold, by order of the Reich government.

3. From Meccano to the Märklin metal construction kit

3.1. 1917/19, Märklin Meccano construction set

On August 15, 1917, the company Gebr. Märklin & Cie. by the Reich government the company Meccano GmbH in Berlin and all rights associated with the brand name Meccano.

In a dealer circular about this event that has since appeared, Märklin promises: ... just as we have already taken care of the movement of the models, we will also continue to develop the expansion of the Meccano system, add practical, comprehensible and up-to-date additions to it and show that we keep this area agile.

This statement and the fact that Märklin had never previously placed advertisements that mentioned a metal construction set shows very clearly that Märklin only began to deal with the metal construction set in 1917 and not as early as 1914, as is always claimed.

A Märklin letter also available to Carl Ehmann, the former manager of the Paris branch, dated October 10, 1917, notifies him of commission payments for the Meccano engines sold in 1915 and 1916. Ehmann's commitment to the conclusion of the supply contract in 1912 was evidently acknowledged. The letter also shows that Märklin actually supplied motors to Meccano Berlin during the war.



1917/18: Cover picture of the Meccano-Märklin basic set.



Autumn 1917: Cover sheet of the first Meccano-Märklin instructions No. 56

The takeover meant a lot of work for the Märklin company if, as announced, the orders placed were to be processed and delivered on time by Christmas 1917. At first, Märklin left almost everything the same: the sets kept their appearance, the parts lists were those from 1913 and also the hexagonal ones introduced by Hirschfeldt.

SW 8 nuts were retained. It can therefore be assumed that Märklin started production of the entire range of individual parts in 1917. The acute shortage of raw materials further forced the use of steel instead of brass.

Only the printed matter was changed, i.e. the cover pictures of the boxes and the instruction booklets, the content of which was taken over almost 100% from the Meccano editions of 1913. The small booklet for set #0 has 16 pages, while the large one for sets #1-6 has 100 pages.

The new instruction booklet No. 71 with 112 pages, published in autumn 1918, also contains almost exclusively building proposals from various Meccano editions. Meccano had even introduced the newly introduced components in 1913.



October 1918: cover page of the Meccano-Märklin instruction book No. 71

Up until about this point in time, Märklin was primarily marking perforated tape, perforated plates and wheels with a double embossing: MECCANO lettering and Märklin coat of arms.

Around the beginning of 1919, Märklin began developing its own new components, including the round plates No. 66 and 67, the large ring No. 68, the spoked wheel No. 69 and the handrails No. 81.

This necessitated a change in the box divisions and sizes, as well as the content lists.

Furthermore, the development of new engines was tackled, which led to marketable boxes with an electric motor and two steam engine models known as transformation engines by mid-1919.

3.2. 1919/24, the first years of the Märklin metal construction set

On May 7, 1919, the draft of the Versailles Treaty was published. Articles 274 and 275 contained therein (champagne paragraphs) prohibited the use of foreign origin and brand names for German products.

This also prevented the Märklin company from continuing to use the Meccano name. Three days before signing the contract, on June 25, 1919, Märklin advertised:

metal kit
MARKLIN
(formerly Meccano)

This is how the Märklin metal construction kit was created, which was to last 80 years.

First, Märklin changed the cover images and pasted over existing boxes and boxes that had already been assembled. New boxes received a bordeaux-red lining on the inside and a black, structured lining on the outside.

The new cover picture, framed in red, shows a tower crane in the middle, against which a boy is leaning. This motif will be the symbol for the Märklin metal construction kit for the next few years.

The M37 price list applies from August 1, 1919, in which all the motors mentioned above and the new individual parts created by Märklin are listed. The following motor boxes are now available:

- No. 201 clockwork motor, small
- No. 202 clockwork engine, large
- No. 300 Electric Lifting Magnet
- No. 301 Electric Motor
- No. 302 Electric Motor Magnet Light
- No. 301A Electrical Supplement
- No. 401 steam engine, small
- No. 402 steam engine, large

In 1920, motor box no. 500 was added, containing motors 202, 302 and 402.

A newly designed instruction booklet No. 71 with 152 pages shows on the front page for the first time the picture of a boy designed by Ludwig Hohlwein with the instruction book open, a yellow square lettering field and red MÄRKLIN lettering.

The contents of the 152-page booklet have been restructured, which greatly improves clarity compared to its predecessors.



1919: Cover of Instructions #71, Issue 19₂

The number of building proposals is 144, of which 58 come from Märklin. 32 are improved Meccano models and 54 are the same or similar to them.

A 13-page section is new, in which all engine boxes are presented with construction examples. The graphic representation of the individual parts with names and dimensions on four pages also leaves nothing to be desired.

The booklet was printed in this form every year until 1923, with two more pages being added in 1921 to introduce new sets.

In 1919, instruction booklet No. 72 was published with the same title, describing all the engines and their uses on 56 pages. This booklet also remained the same until 1923, with minor changes.

In 1921 Märklin announces new additional sets for the metal construction sets, which appear in 1922/23:

- No. 101/1 transport systems, small
- No. 101/2 transport systems, large
- No. 102 wall and grandfather clocks (clockwork)
- No. 103 Building Electric Motors
- No. 104 wall and grandfather clocks (electric)
- No. 103A Supplementary Equipment

There are matching 12-page instruction booklets no. 73, 74 and 75 for these boxes, all with the Hohlwein cover picture.

With that, most of the 32 boxes belonging to the Märklin metal construction kit system from 1919 to 1924 were mentioned, they are

- 10 basic boxes 00 to 6H
- 8 supplement boxes from 0A to 5AH
- 6 additional boxes from 101/1 to 104
- 8 operating engine boxes from 201 to 500

There are 1924 individual parts

- 105 for normal kits
- 32 for auxiliary or engine boxes

Compared to the 51 individual parts with which Märklin started the topic of metal construction sets in 1917, the number has more than doubled in seven years.

The development presented here in short form is described in detail in the richly illustrated treatise.

In addition, because it is a special episode, the Swedish REX construction set from 1919 by the manufacturer Uno A. Riese / Stockholm and the Märklin-REX construction set from the early 1920s are also presented.

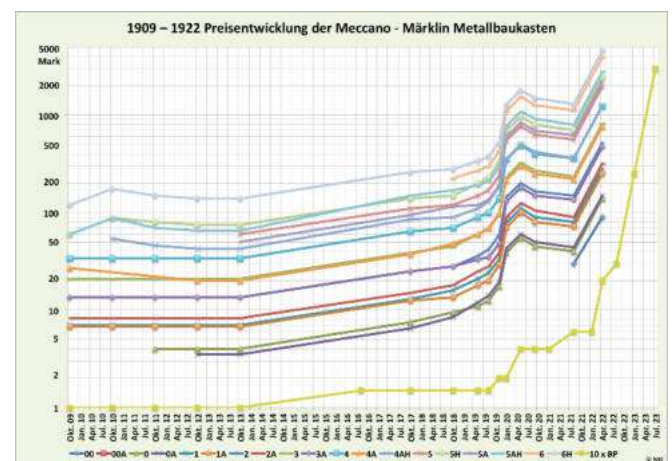
The last two chapters deal with the currency devaluation and the resulting price development of the construction sets, as well as with the Märklin brand and its presentation.

Final note:

After I have received the approval from the Märklin company to be able to publish this paper, the further procedure is as follows:

- Preparation of documents for a lecture on this topic.
- Free distribution of the document to domestic interested, via download: <http://www.nzmeccano.com/image-162268>(German) <http://www.nzmeccano.com/image-162269>(English)
- A continuation of the work into the 1930s or even 1950s is not planned.

It will be published as a digital PDF document. Printing is not intended, but can be arranged by anyone in a copy shop.



1909-22: Price development of the Meccano - Märklin metal construction sets No. 00 to No. 6H.

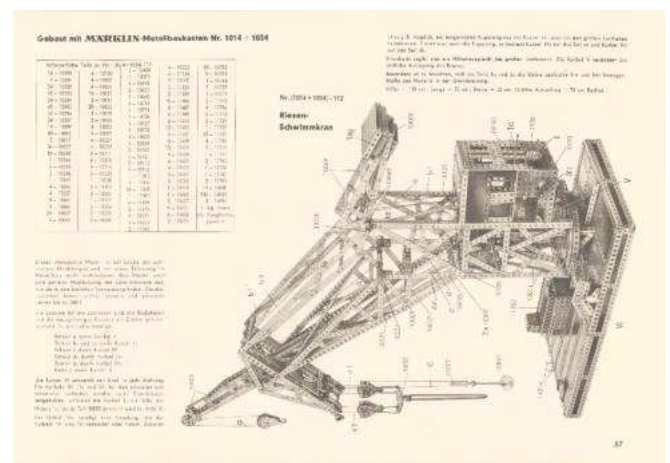


Giant floating crane in 1:95 scale

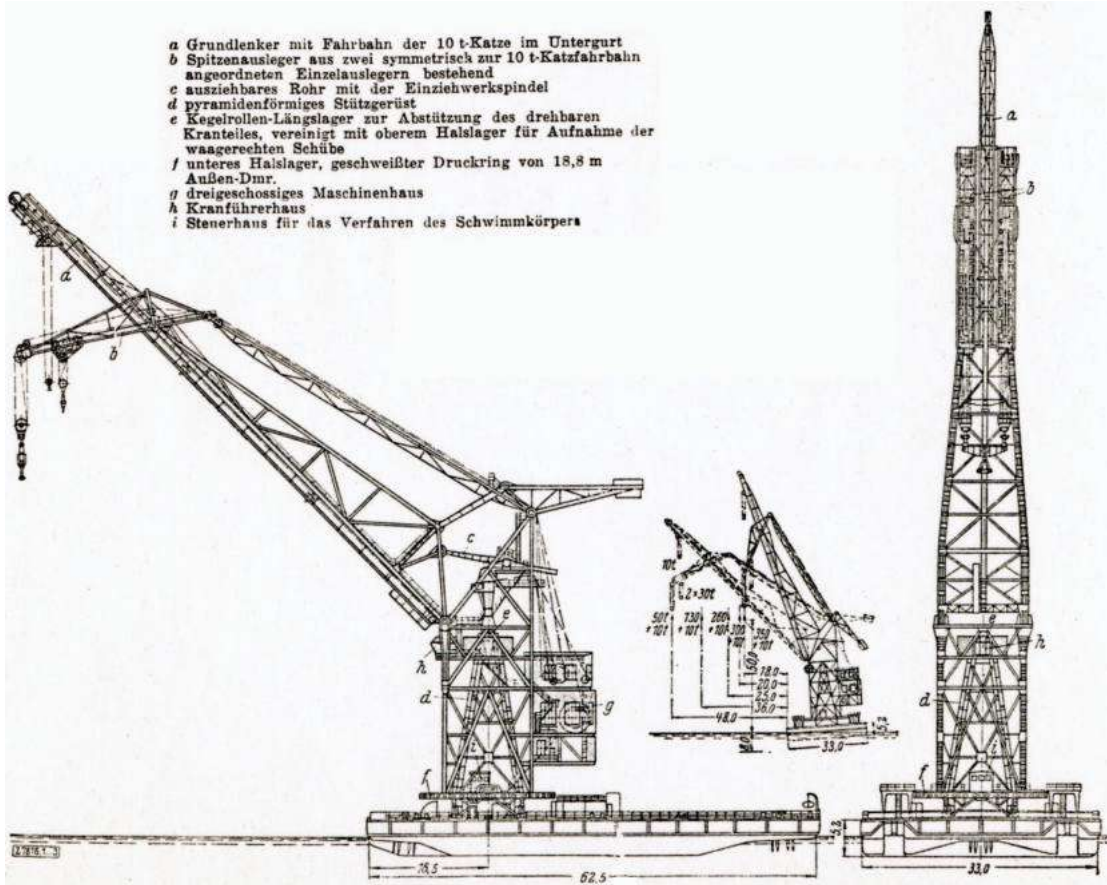
By Günther Lages (text and photos)

The Märklin model 112 of a giant floating crane (template in the instruction book 14930 from 1963) is a replica of a Demag crane. Original drawing fragments and various other information gave me the incentive to deal with this construction.

I wanted to install the big ring #11095 and the big wheel #11015; both therefore determine the scale 1:95 to the original. Since I like to draw, I summarized the existing original dimensions with the "Librecad" software. When screwing, I partially used the said blueprint 112, but it showed

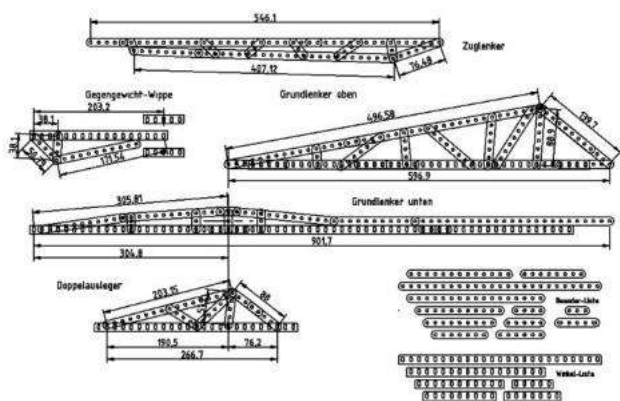


Model 112 from Märklin manual 14930



Drawing of the Demag floating crane, which is the model for the Märklin model.

how valuable it is to get dimensions from the prototype in order to then adhere to them as precisely as possible. Therefore I calculated all system dimensions in a table. Never before have I paid so much attention to the correct scale of a model as I do with this construction. The result is a slender floating crane in which the machine house was also small in scale.



Libre CAD drawing of the jib and seesaw

In the original, the auxiliary hoist of 10 t travels almost from the crane cab up to the top of the crane. I was able to realize this mechanism with an angle bracket bottom chord. Trolley and crane hook are operated with two hand cranks; the long way

the cat supplies an additional

game operation. march
had these
function in the
building template 112

not realized.
She was also with
the biggest mar-
klin basic set
1014 and the
supplement box
1034 do not
bar.

through the central one
tip boom
was it necessary
dig, a shared
Double boom for
the main hub of
350 t to construct.
both together
men is the special
feature of
this swimming

crane. Both hoist winches, each weighing 175 t, can perform their duties individually or coupled with a traverse. The load hooks and rope pulleys are operated by hand cranks in the model; they are coupled by engaging an additional pinion. 19 tooth sprockets were already required to position all hand cranks at equal intervals.

In the original, a trolley with a 30 t lift is also mounted on each of the two booms. I built their travel drive using M6 spindles from the Märklin truck kit 1085-10851 and drove them with synchronous gear motors.



Boom tilt drive



Boom tilt drive



Boom tilt drive as a single part

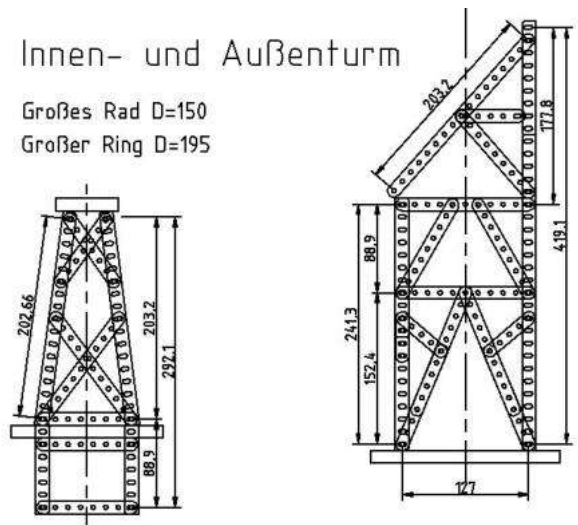
The cable winches for the crane hooks are operated with hand cranks. In building plan 112, only one trolley is moved between the double jib, which is why this floating crane only has four load hooks instead of five.



General view of the floating crane

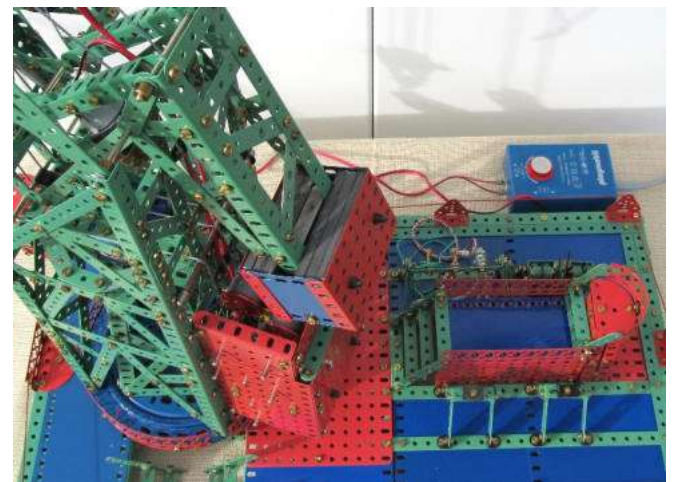
I built the pyramid-shaped inner tower as stable and high as possible. It starts from the lower edge of the floating body, adapted base plates form the foundation. The outer tower's main bearing consists of six guided rollers between the blue plates # 10365. The reels are star-shaped in two

Meccano parts # 213b held. The lateral sliding guide between the large ring and the wheel on the base can be reached very precisely by adjusting the height. A rotary drive is not installed.



Libre CAD drawing of the inner and outer tower

The counterweight rocker with 2.1 kg of flat steel keeps the basic handlebar relatively stable over the entire adjustment range, six additional flat steel pieces measuring 60x8x85 mm are installed in the nacelle. This results in a total counterweight of around four kilograms. The boom adjustment, the mechanism of which in the Märklin construction 112 with a large gear wheel and worm gear is overtaxed because of the high load, is carried out in my version by a spindle with a geared motor.



Norbert Klimmek published information about the original floating cranes in the forum:

<https://www.metallbaukasten-forum.de/viewtopic.php?f=43&t=145>(Registration required)

<https://www.metallbaukasten-forum.de/viewtopic.php?f=43&t=182>

More pictures of my model can be seen here: <https://baukasten-kinderheitserinnerun-gen.webnode.com/floating-crane/>



From Urs Flammer's exotic drawer: Maba and Staba

There were two modular systems under the name Staba. There were the Maba and Staba construction sets from Gelsenkirchen and Iserlohn, which combined over the course of history from the 1930s to 1959.

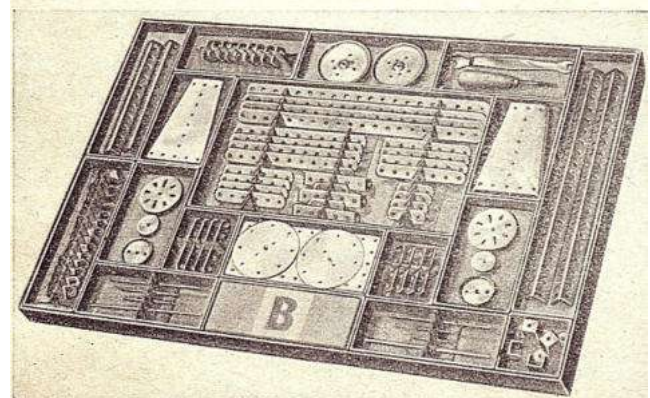
The metalworking company Heinrich Hülter jr. (suitcase lock and fittings factory) from Iserlohn made the metal construction kit Staba after 1945 from leftovers from armaments production *Wand Craft Box* here. From 1948 this company was a partner in Staba GmbH from Gelsenkirchen, which produced the Maba metal construction kit.

The company Heinrich Hülter jr. existed from the beginning of the 20th century until 1981. Staba GmbH from the 1930s until 1959.

The metal construction sets of the two originally separate companies were different, but they are presented here together because after the partial takeover of the company, production was combined or was at least partially produced at the other location. An overall not very clear and well-known story, which is only touched upon briefly in the book *Baukasten* by U. Leineweber.

The older of the two kits was the Staba kit from the company H. Hülter from Iserlohn and is described here first. This is a construction kit with flat and angled plates with relatively few holes through "construction rods" and

In addition, between 1948 and 1967 there was a construction kit called Staba (*Sta Stba* nd metal construction kit), which is not covered in this article.

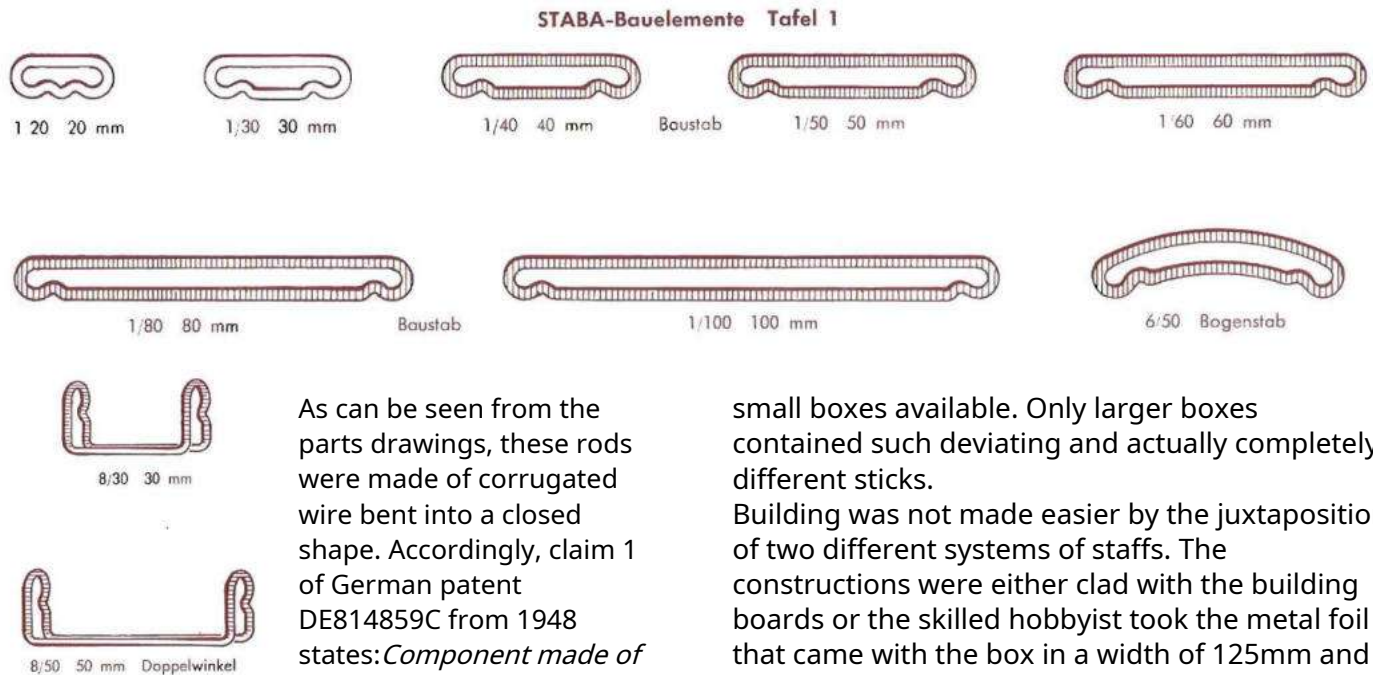


Staba from GDR production, with the characteristic trademark

Staba

"T-beams" and connected with M4 bolts and nuts. The building rods came in two forms, each with different lengths. They were slotted to facilitate construction with the few-hole plates.

Shape 1 building sticks:

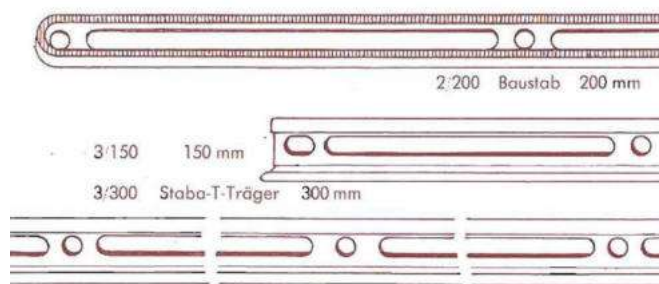


As can be seen from the parts drawings, these rods were made of corrugated wire bent into a closed shape. Accordingly, claim 1 of German patent DE814859C from 1948 states: *Component made of wire for construction and*

Handicraft games, characterized by a starting rod bent into parallel legs and provided with detents for the connections. The trademark also shows such a wire lug:



There were also type 2 building rods, which had a more familiar shape, but were bent up all around the edge, which could make screwing to plates or other building rods difficult.



The T-beams also had a small flange. In the German utility model DE1600567U is called

it "Flat rod for building toys and handicraft kits, characterized in that the strip, which is provided with slots and holes in succession, is bent at the edges to form a profile." These wands look similar to Stokys wands, which is probably why there was no issued patent on them. The flanged or profiled bars were not in the

small boxes available. Only larger boxes contained such deviating and actually completely different sticks.

Building was not made easier by the juxtaposition of two different systems of staffs. The constructions were either clad with the building boards or the skilled hobbyist took the metal foil that came with the box in a width of 125mm and various lengths and cut it to size. Paper would probably have gone too. In addition to the two types of rods and the perforated plates, there was also a small clockwork motor, a chain with sprockets with three different numbers of teeth and the usual small parts such as crane hooks, hand cranks, small brackets and straps. Furthermore, shafts and cord wheels were in the parts catalogue. The sticks, which only had elongated holes, allowed free handicrafts to be carried out independently of a fixed distance between the holes. However, I have doubts about how stable the models were in the end,



On the previous page the title picture of an instruction booklet is shown and here the back, on which

both types of rods can be seen.

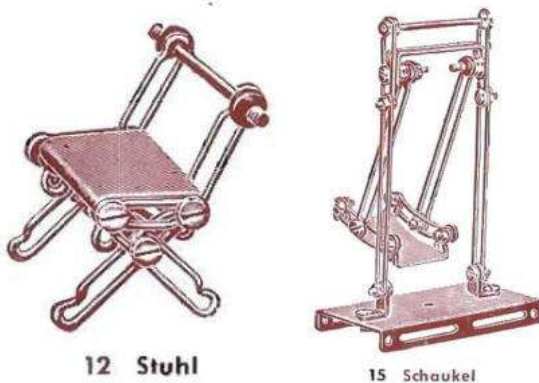


On the left is a Ferris wheel from the instructions and above is the corresponding model. Thanks to Joachim Kleindienst for the model and the picture.

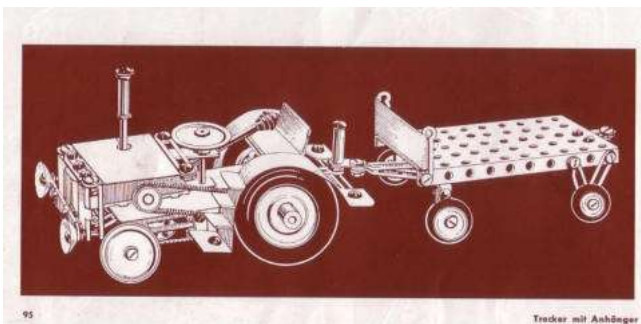
Set #3 was necessary for the Ferris wheel. With the little box No. 0...



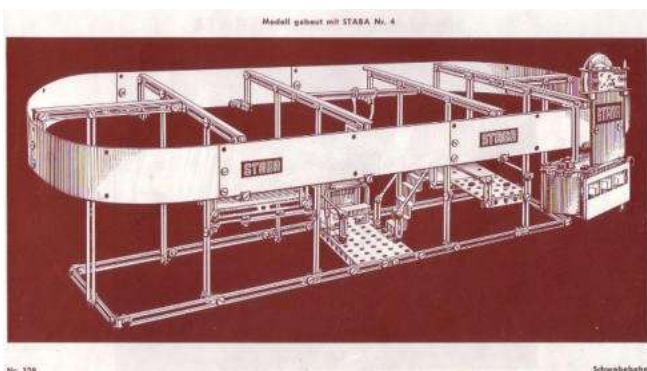
... only very simple models were possible:



Wheels were included in set #3, which, together with a clockwork motor, could be used to build a "tractor and trailer":



Box No. 4 and the "Schwebebahn" must have been just a dream for most people.



Here is a stick 1 with cover and content:

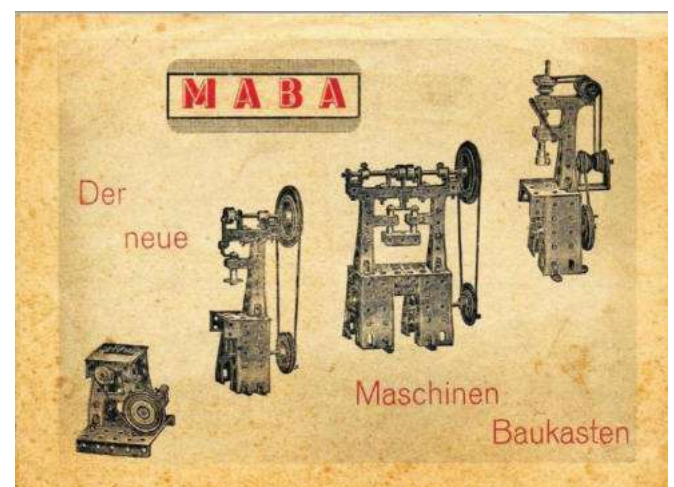


Interestingly, the Staba set was also sold in Australia, for which there were also English-language instructions.

More information on Staba at T. Edwards: www.meccanoindex.co.uk/Other/Staba-2/index.php

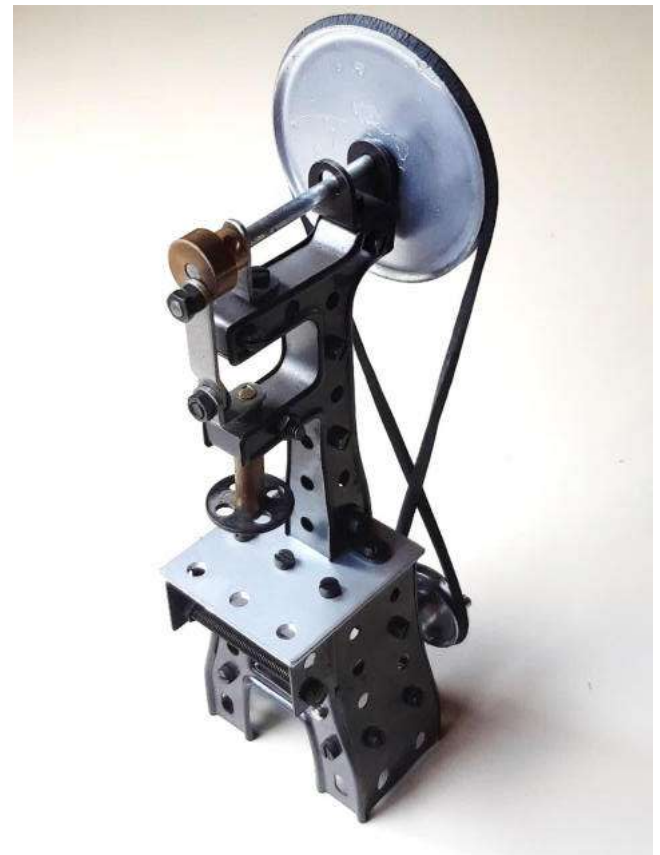
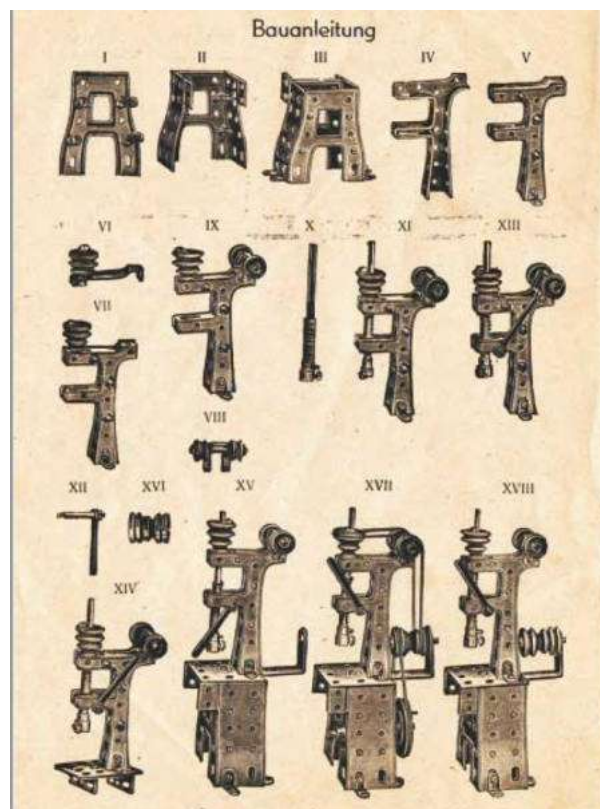
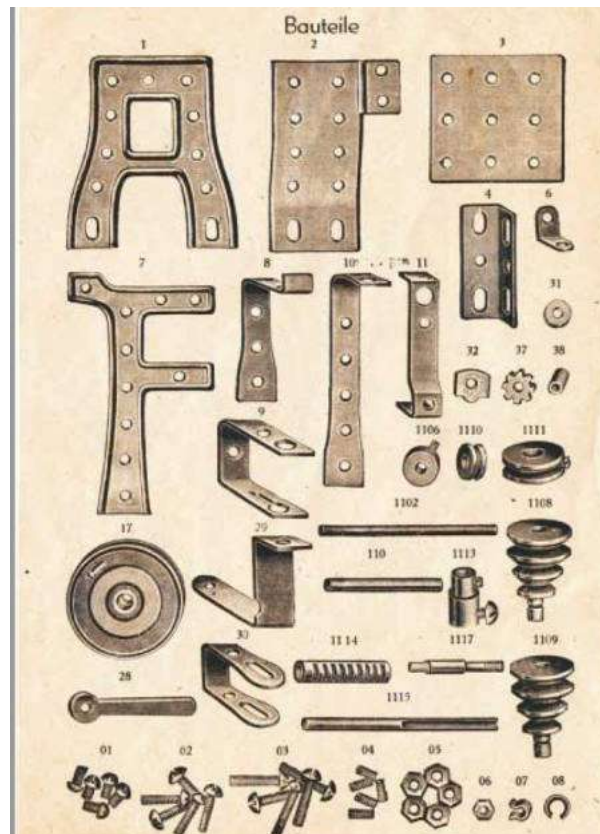
The Maba metal construction kit from Staba GmbH in Gelsenkirchen, which later belonged to Heinrich Hülter's Iserlohn company for fittings and the like, was a completely different type of metal construction kit. Maba is an acronym for mails ba ukasten, and the box contained prefabricated more or less standardized sheet metal parts with which machines can be simulated.

The sheet metal parts are made of steel, the screws have an M4 thread.



The title picture of the instructions shows various machines such as saws, drills and lathes, which, on closer inspection, are made up of similar parts.

The parts are black steel stampings that are bolted together with small brackets and M4 screws. In addition, there were pulleys and axles so that machine tools could be replicated. The figure shows the components needed to construct a drill (below).



Shown here is a model of a punching machine that is made up of the same basic elements as the drilling machine on the left, and below is an almost complete Maba 4 construction kit.



The Maba kit was a kit with which you could only build a few models due to the special parts and is therefore not to be regarded as a universal kit. He was suited to build few toy machines.

More information on Maba at T. Edwards:
www.meccanoindex.co.uk/Other/Maba/index.php

Homemade spoked wheels

Step by step guide by Wolfgang Schumacher

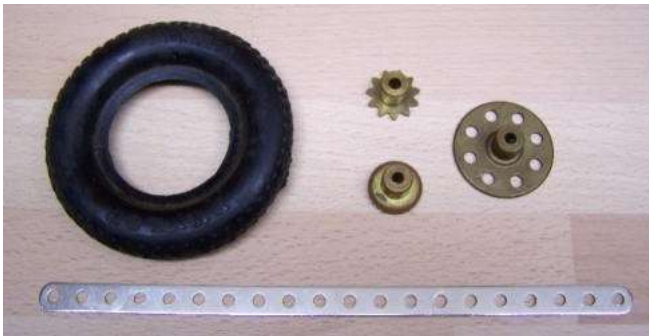


Fig. 1: Starting material - individual parts

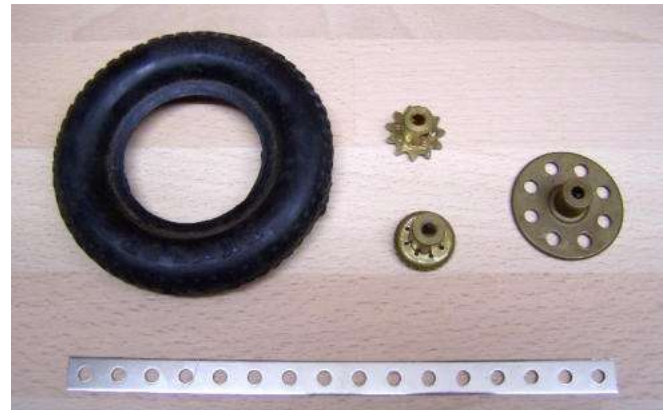


Fig. 5: Rim tape cut to 16 holes

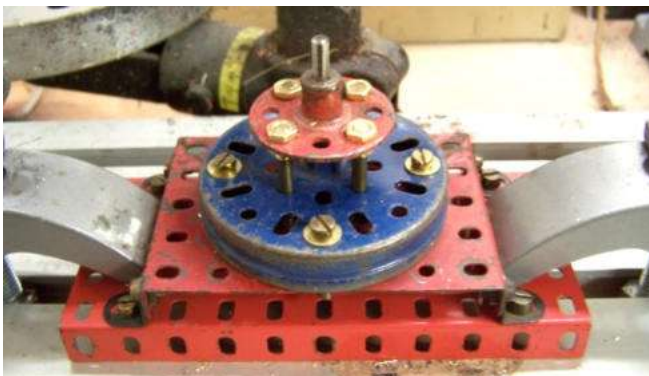


Fig. 2: Divider made from Märklin parts for attaching the 8 required holes



Fig. 6: Rim steps

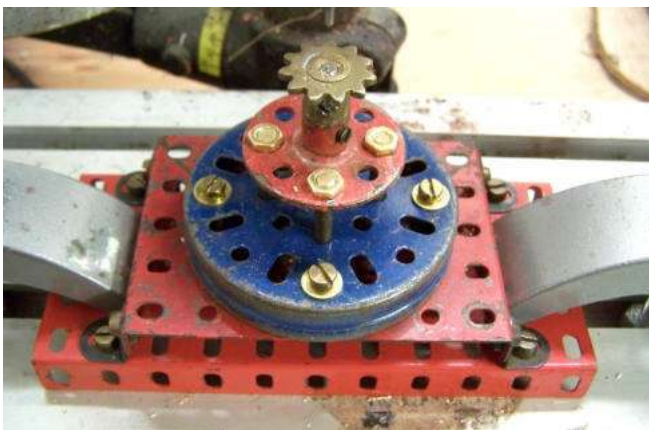


Fig. 3: Divider with clamped sprocket



Fig. 7: Rounding of the rim blank

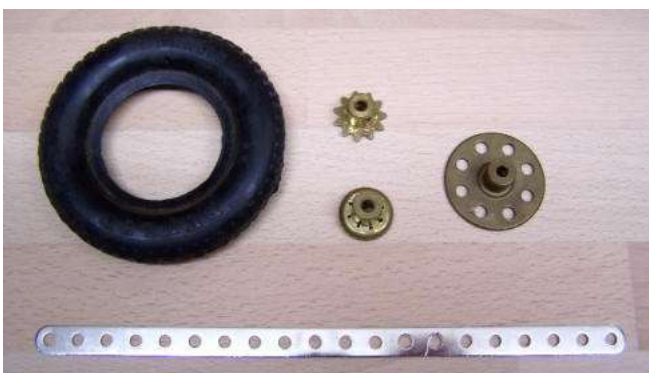


Fig. 4: 8 bores 1.6mm each in chain and crown wheel



Fig. 8: 4 rim blanks open



Fig. 9: 4 rim blanks soldered together



Fig. 10: Cleaning after soldering with white spirit



Fig. 11: Individual parts, drilled and rounded



Fig. 12: Individual parts drilled, rounded and polished



Fig. 13: Individual parts - hub soldered together



Fig. 14: Brazing the hub using flux, solder and a propane torch



Fig. 15: Individual parts drilled, rounded, soldered and polished



Fig. 16: Individual parts drilled, rounded, soldered and polished with curved spokes



Fig. 17: 16 spokes, raw and bent

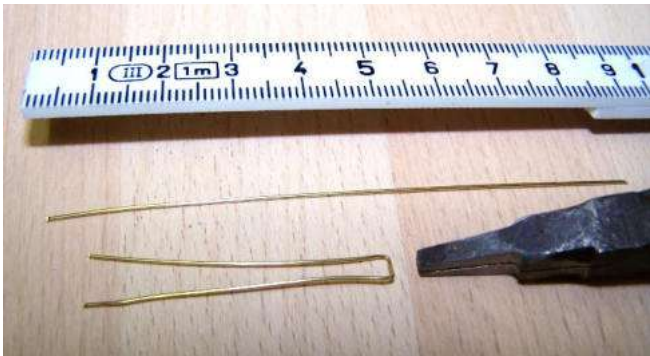


Fig. 18: Spokes made of 0.6mm brass wire, wire length 9cm, bent in the middle

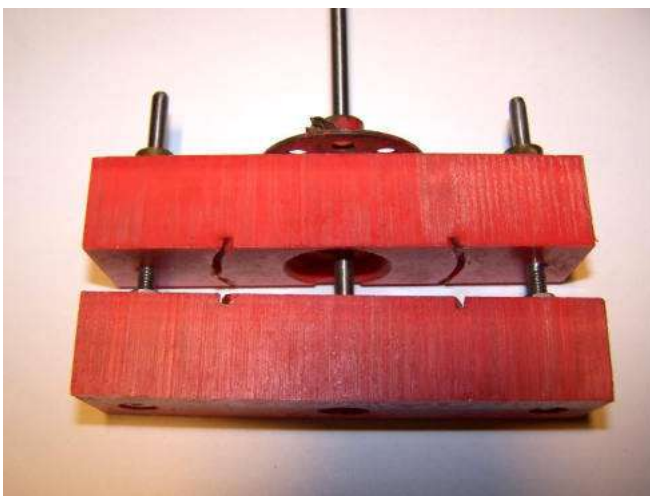


Fig. 19: Centering device



Fig. 20: the first 4 spokes are soldered



Fig. 21: Cleaning after soldering



Fig. 22: Threading in the next 2 spokes



Fig. 23: Threaded 4 new spokes



Fig. 24: Threaded and tightened

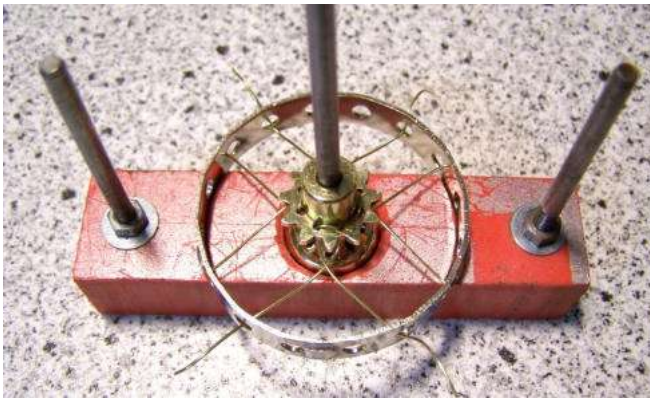


Fig. 25: Rim placed in centering device

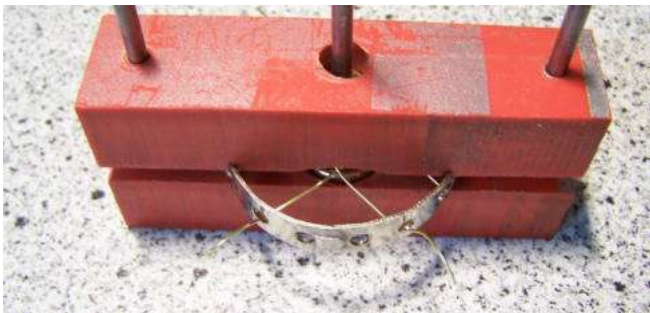


Fig. 26: Rim clamped



Fig. 27: Spokes soldered



Fig. 28: Excess solder filed off at the edge



Fig. 29: 4 wires, parallel



Fig. 30: Inserting the next 4 spokes



Fig. 31: Crossing the spokes



Fig. 32: Pressing on the inserted, crossed spokes



Fig. 33: Threading in the crossed spokes



Fig. 34: Pulling in the newly threaded spokes

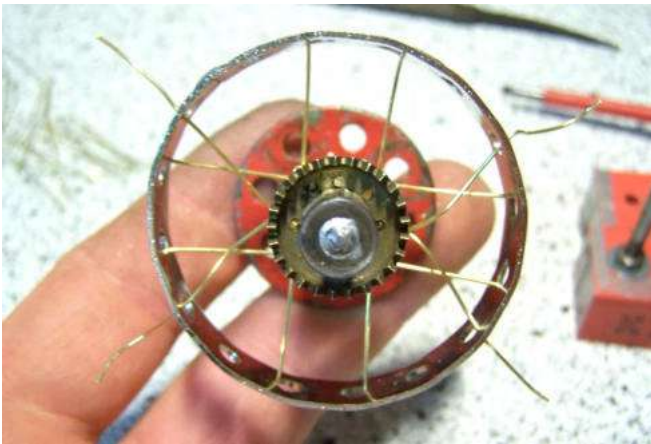


Fig. 35: Threaded

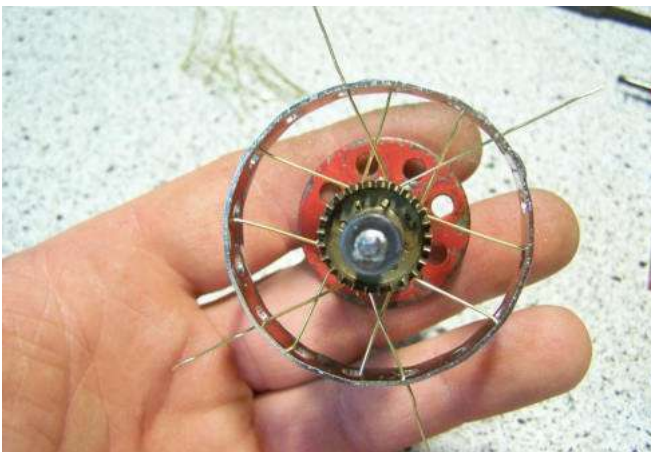


Fig. 36: Streamlined

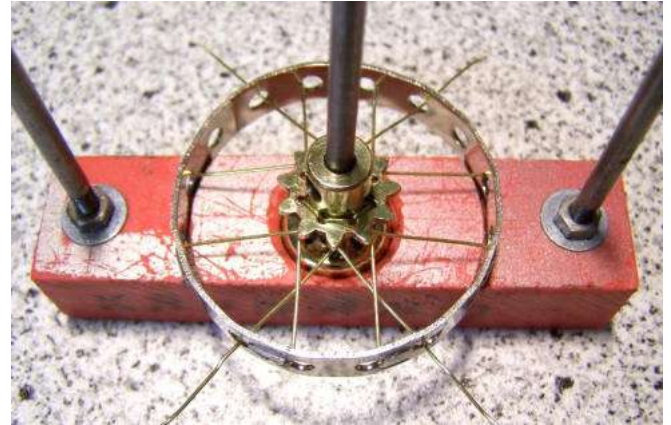


Fig. 37: Rims placed back in the centering device



Fig. 38: Tightening the spokes for soldering



Fig. 39: Additional spokes inserted



Fig. 40: Rim, first side spoked and soldered



Fig. 41: First page finished - from the right

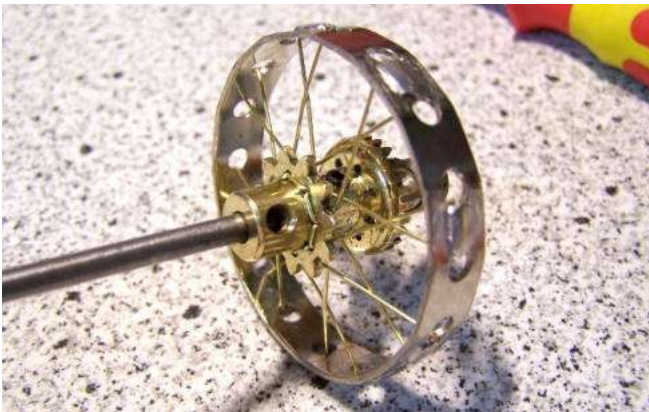


Fig. 42: First page finished - from the left



Fig. 43: First page finished - from the back



Fig. 44: Second side - the first 4 spokes soldered - from behind



Fig. 45: Second side - the first 4 spokes soldered - sideways



Fig. 46: Second side - the first 4 spokes soldered - from the beginning

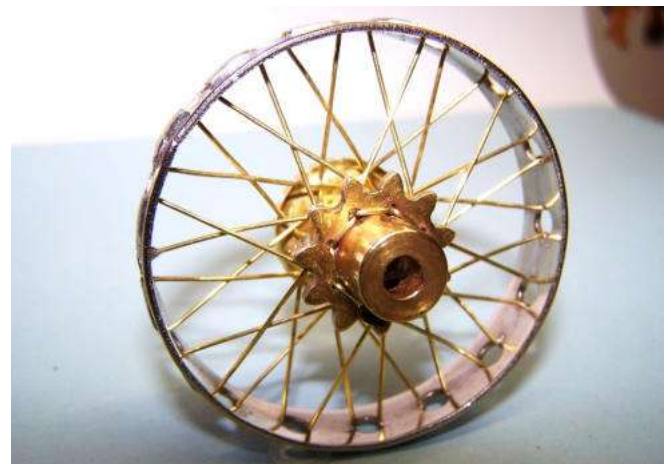


Fig. 47: Completed wheel rim

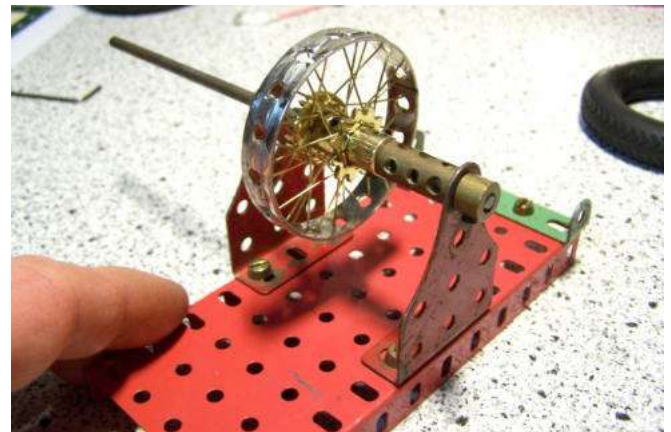


Fig. 48: Rim check for imbalance

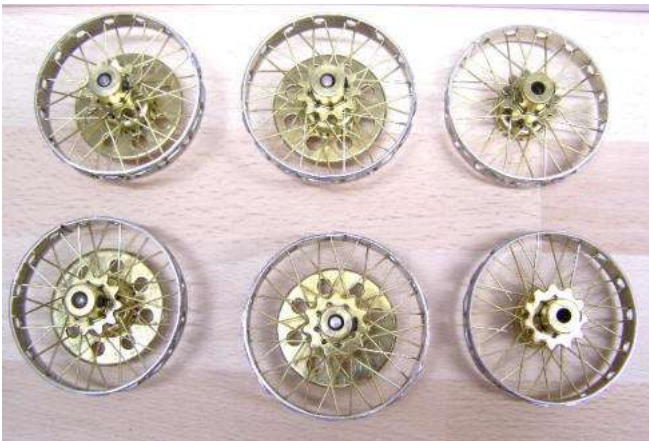


Fig. 49: 6 rims assembled and balanced



Fig. 52: almost finished groove



Fig. 50: Processing the tire - removing the inner burr



Fig. 53: Final result - bravo!



Fig. 51: Milling a groove to accommodate the soldering bead of the rim



Fig. 54 as a spare wheel in a car model by Klaus-Dieter Degenhardt †