continued to be made until at least 1966. The hole pitch was 12.0mm and the Axles and N&B were 3mm Ø. All parts were nickel plated. As well as the sets mentioned in OSN 8, there were packs of parts Z1-Z14 available. In a photo of a 1955 F Outfit the only part that isn't in the MCS Extra Sheets is a Circular Plate of 45 or 50mm Ø (slightly larger than B31) with only a centre hole and 4 others on a pcd of 36mm (probably). To give an idea of size, the Pulley which takes the Tractor Tyre scales at 75-80mm diameter.

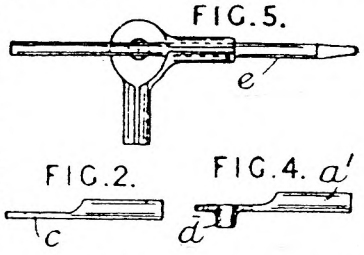
STRUCTATOR From EZ. This system was made by Bing between 1913 and c1917. Then, if I've understood correctly, from 1919 to 1921 it was produced by 'H.Huck, Inh. Adolf Huck' of Nürnberg as **'TECHNIKO/TECHNICO'**. A firm called J.Kleiner of Houndsditch advertised STRUCTATOR in G&T from May 1922 until April 1924, but I suppose it's possible that they were selling old stock. As shown in MCS, the original sets were advertised here in December 1913.

The German patent was Nr.282410 of 14 January 1913. The grooved Baseboards were wooden; the Plates (see 6/115) and some of the small parts were aluminium.

TECHNIK Another small set from the WW2-early 1950s period. The parts were made of steel and bare aluminium: some of the former were plated, nickel or brass, and others painted red. Holes were 3.9mm Ø but I don't have the spacing. In EZ the name TECHNIK-METALLBAUKASTEN WESTFALIA is mentioned in passing and it might be the WESTFALIA described later. There's also a small photo of a set in Pl.60 with TECHNIK on it but it's too small to see any of the other wording.

TECHNIKUS I couldn't find anything in EZ on the postwar East German system of that name that's in MCS; the one made by VEB Funkwerk, Leipzig with an 'RFT' logo, and parts that look just like STABIL. There is however mention of an earlier TECHNIKUS made by Menki Zimmer of Fürth from 1914 to ?. No other details are given.

TECHNOFIX From EZ. This was a system in which steel Rods were joined by being pushed into Connectors (rather like the MECCANO Rod and Strip Connector) which were then joined together in some way. No N&B were used and David Hobson has suggested that the method may be that shown in a UK patent from 1924. It is No.230975 in the name of B.Buxbaum, and toy bridges and awning frames are mentioned as possible applications. One Connector has a spigot 'd' which engages in the hole 'c' of the other Connector; and then sliding the Rod 'e' in the second Connector over the holes prevents the joint from falling apart. The ends of the Rods were to be tapered if necessary.



The system lasted from 1928 to at least 1935. The original maker (or agent?) was W.Keller & Co. of Stuttgart, followed in 1930 by Kosmos, also from Stuttgart, and then from 1931, Gebr. Einfalt of Nürnberg. An ad from 1935 is headed KOSMOS-BAUKASTEN **TECHNOFIX.**

The ad shows 3 models, a small Trolley with Wheels that have 4 large holes in their faces, an Arch Bridge, and a Crane. The Pulleys in the latter look like the Trolley Wheels but small holes can be seen between the large ones. The Crane has a quite complicated braced structure but no indication of scale is given.

THALE STAHLBAU TECHNIK Some notes on this East German system were given in 8/174. There are photos of 2 sets in EZ and it's interesting to see that the 5*5h Plates have elongated holes along 2 opposite edges, and not the larger holes in OSN 8. The only other difference is that the shade of the EZ red parts isn't at all orange.

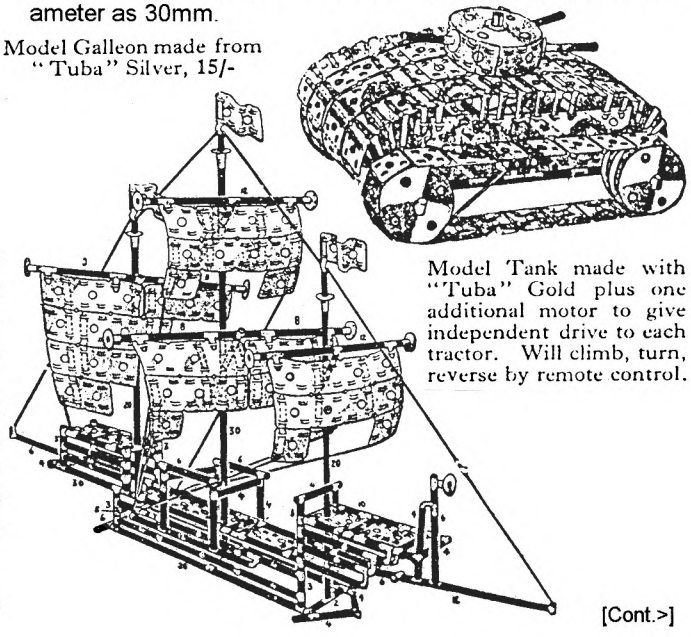
The dates given in EZ are from the 1950s to the 1970s; the maker, Krause & Co., later became VEB Metallspielwaren Thale/Harz.

TITAN EZ gives the period of this 10mm hole pitch system as c1948 to 1960. MCS/FB gives the hole diameter as 3.5mm. The manufacturer was originally Titan GmbH of Ludwigsburg/Württemberg, and later of Schwäbisch Hall, as in MCS/FB. A photo of a set from about 1950 shows the Strips and small parts black, A/Gs green, most Plates red, and most circular parts red, silver or green. The only parts in the rich blue are the 11*7h and 9*7h Plates, and the large Flanged Discs (PNs 64 & 65 can be seen). The model on the box lid is predominantly red and blue with silver wheels, the colour scheme given in MCS/FB. The parts were made from steel 1mm thick.

Jeannot mentioned a TITAN (2) with steel parts painted light grey but I don't know whether this was a colour variant of the above or a different system.

TUBA This is included as a UK system in MCS but the evidence now available indicates that it was German. The original Patent was German, applied for on 31 May 1933 by Josef Szapiro, and it was made in Berlin by the firm Die Tuba Spielwaren GmbH. David Hobson tells me that the UK Patent, 434838, of May 1934 (with a Convention Date of 31 May 1933), was in the name of J.F.Kennedy, a British subject but with a Berlin address of Joachimsthaler str. 38. In ads for TUBA in *Games & Toys* there is no mention of it being British made, and most likely it was imported from Germany. It was originally advertised in Sept 1934 by The Chad Valley Co. Ltd, Harborne, Birmingham 17, but in the last ad, in Oct 1935, Andrew Charles Ltd, 13-16 Wrothesly Street, Birmingham 5, announced that they had taken over sole distribution. Several models were shown in the different ads including the ones below. Under colours Jeannot listed steel, blued and nickel plated, and then later, gold, silver, red, green, blue, and yellow Plates. A photo of a German sets in EZ shows black Tubes, bright Plates, a red large Pulley and yellow small ones - similar colours to those given in MCS. An ad in German for the Motor is also similar to the one in MCS apart from using metric units, but it does show it running from a 4½v battery, and it gives the diameter as 30mm.

Model Galleon made from "Tuba" Silver, 15/-



Model Tank made with "Tuba" Gold plus one additional motor to give independent drive to each tractor. Will climb, turn, reverse by remote control.

[Cont.>]

an 8-hole Wheel Disc, and the 2 Spanners with square tails shown below (enlarged), along with the top of the box lid (opposite). (JB)

• The parts in the **SACHSENMEISTER** theme sets (15/418) have only very limited compatibility with the ordinary parts. (JB)

• The parts in a photo of a **SCHWERKA** Set include the Windmill Sails illustrated in OSN 15, though they don't look black. (JB)

• On **TECHNOFIX** the parts are steel, brass plated, the holes are 3.5mm Ø, and the arms shown in Fig.5 can pivot independently. (JB)

• On **WEMA**, Nebenzweig is not a town, it means 'sideline' and thus constructional toys were only a sideline activity for the firm Eberspächer from 1946 to 1948. (They made and still make, heaters for cars.) (SG)

• The early 30s catalogue that listed ALPHA also includes **ZICK-ZACK** with as an illustration the box below. The WK logo (by Nr.) shows it to be from the Wilhelm Krauss period, and the main thing is the unusual hole pattern in the Strips. 3 sets are listed with 40, 80 and 147 parts. The largest one cost 18 Marks a dozen, against 66 a dozen for the ALPHA set with 150 parts, so it would have been aimed at the cheap end of the market. (SG)

The 'NEW' GERMAN NAMES

• **ANDERS**, blue and orange parts without many holes in them, and so not very adaptable. (JB)

• **BAUE SELBST**, from the 1930s with special parts for Cranes. (SG)

• **BOSCH**, MECCANO-type parts, painted black. A photo shows a wooden box with a sliding lid. The label on it is similar to the manual cover reproduced opposite. (JB)

• **COMBINATOR**, 1930, parts to make buildings. (JB)

• **CONRAD**, wooden parts but metal Brackets, Axles, and Wheels. (JB)

• **DUX Railway Sets**. (SG)

• **FRI-DIE**, a simple system with red and blue painted steel parts, and holes spaced at markedly more than ½". [It is probable that this is the FRI-BIE of 11/291; other mistakes in that list: KOHLER should be KOBLER, and WESFALIA, WESTFALIA.] (JB)

• **GECO**, preceded CONRAD and is identical to it. (JB)

• **GESCHA**, a simple system from the late 1940s, with an unusual hole alignment. (SG)

• **HEIKO**, MECCANO-type parts but only a limited number of simple ones. (JB)

• **INGENIO**, pierced or perforated sheet steel parts painted white, red or black, which slot one into the other to make Dolls' Furniture, parts of Buildings, and also Trains. (JB)

• **KOSMOS MASCHINEN**, from the 1930s, with semi-specialised parts to make machines. [Perhaps from makers of TECHNOFIX?] (JB)

• **MAGNETO**, heavy steel parts, with Wheels & Axles. (JB)

• **METALLIX**, from the 1950s, with MECCANO-style steel and natural aluminium parts. (JB)

• **RIAG Modelbau**, another simple system from the late 40s, with a hole pattern like that of ZICK-ZACK above. (SG)

• **ROCO**, possibly from the 1950s, & based on Rods. (JB)

• **UNSERE TAKTSTRASSE**, an East German theme set to make 2 different Tractors with mainly special parts. (SG)

• **WERNER'S Metallbaukasten**, an early postwar copy of TRIX. (SG)

An EGB-ELEKTRO Outfit Well actually most of the parts from one that Richard Symonds came across last year in Canada (for $5). He kindly sent a photo of the parts and as examples, a 3h Strip and a N&B. The Set is thought to be from the 1950s and is shown in MCS as ELEKTRO-BAUKASTEN. EGB was the name of the East German maker from Leipzig, and as well as this EM (Electro-Magnetism) Set, 3 others are noted in MCS - the M (Magnetism), RE (Static Electricity), and CE (Electro-Chemistry) - but no details are given.

The main parts of the EM Set are 2 8*14h Flanged Plates, various Strips and special Brackets, a ready-wound Coil and motor Armature, a Horseshoe and 2 Cylindrical Magnets, and a Bell. All the parts are shown in MCS but the following details can now be added.

• **DATA** (in mm) STRIP (3-hole): •hole pitch/dia, 10.0/4.2; •width, 10.0; thickness, .86; •ends fully radiused. [No bosses] THREAD: M3 [No Axles or Gears] NUT: hex 5.6 A/F; BOLT: tapered cheesehead 5.0 Ø; both nickeled steel.

• The **Flanged Plate** is moulded from dark brown plastic and has no holes in the flanges. The holes in the top look much smaller than those in the Strips.

• The 3 & 9h **Strips** are aluminium and have little material outside the end holes, so the 3h one is less than 28mm o/a. The 6h Strips look to be dark brown plastic.

• The **Trunnion** appears to be aluminium, and the long centre slot looks much longer than in the MCS illustration.

• Most of the other **Brackets** look as if they are nickel but some may be aluminium.

• The base and switch handle of the **Switch** #8 look to be red fibre, and the fittings, nickel.

• The **Coil** is about 20mm wide and its top and bottom are brown plastic. The **Armature** is about 10cm long o/a.

• The top contact part of #12 (**Contact Strip**?), and the **Brushes** #18 are copper.

• The **N&B** are in a flat square box that may be made of brown plastic. It's about 4*4cm with a hinged lid, and may be a substitute for the #21 shown in MCS. In Richard's parts the **Container** #22 (with Iron Filings in it I think) is a clear phial with stopper.

• The flat **Plates** #29 & 30 are red - plastic no doubt.

• The **Pointers** #31 & 32 are about 6cm long. #31 looks at first glance like light yellowy-brown wood, but is probably plastic; #32 is aluminium.

• Part 33 (**Nägel**, but I can't think of a suitable English word), looks aluminium, and is some 5cm long with a small hole in the 10mm long by 5mm wide spade end.

• The **Bell** is nickel and about 8cm diameter.

• What may be #35 (**Disc**?) is black and about 2cm Ø. **Axle** #36 is a brass looking Threaded Rod, 5cm long.

• There are 4 lots of **Wire** on the card former of #41, and the wording on it is Kupferdraht 0,10mm Ø; Kupferdraht 0,30mm Ø; Eisendraht 0,30mm Ø; Heizdraht 0,12mm Ø.

• The **Bolts** are 6mm u/h, and 2 longer ones can be seen, one 15 and the other 18mm long. Their (neat) heads are 2.0mm deep. The (machined) **Nuts** are 2.3mm thick.

• There are 2 identical nickel **Spanners** which look like the one in MCS and are about 8cm long. The **Screwdriver** is perhaps 16cm o/a and has a long, round wooden handle.

Richard wrote that parts 13,14,15,19,20,27 & 40 are missing from the Set, and I can't see 23,26,38,39 & 42-46 either.

ITEMS FROM LETTERS

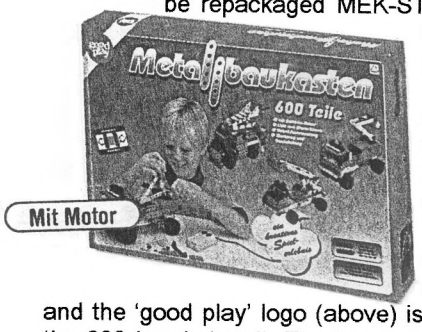
1. From Gordon Finch. On the **STEEL TEC Enterprise** parts in 17/481: the 3 & 5h Strips are, in MECCANO parlance, formed and not curved; the 10h Strips are both curved and formed, but not quite to the extent shown in the manual, and at a glance they appear to be identical; the black Plates are of very thin, very flexible plastic; and the 7h Formed NS has kinks/creases across the holes. The electrical functions are operated by very neat, moulded push buttons, which aren't mentioned anywhere in the Manual.

2. • On the **Gilbert MECCANO #150 Set**, see 19/546, John Hanby noted that not all the parts needed for the models are included in the Set (or the Parts List), and there are insufficient of others.

• He also wondered if all the manual models for **CONSTRUMENTS** Sets 30 & 100 would actually cost £30/£100 (19/554). [Perhaps not because the claim wasn't used in any other known ads.]

3. From Werner Sticht. • On what was produced at **Schmerbach** (see 18/504 & 19/555), Karl Debit has asked some workers at Pfaffschwende, who had worked there for over 40 years, and they told him that there was never the machinery at Schmerbach to produce aluminium parts, and no-one knew of a connection with the **SONNEBERGER** system. A friend of Karl has also asked about SONNEBERGER in Sonneberg and in Steinach, and there too no-one knew of production at Schmerbach (or any connection with CONSTRUCTION either, see 17/489). So the Schmerbach phase of SONNEBERGER, arising only from the reference to it in *Eisenzeit*, is 'not proven'.

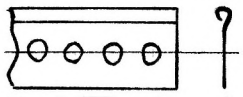
• The German mail order house **Quelle** (see 13/361) have sold TRIX and CONSTRUCTION in recent years, but in their Autumn/Winter 1998/99 catalogue the 3 sets offered appear to be repackaged MEK-STRUCT. They are identified by the numbers of parts in them, 300, 400, & 600, and the models on the lids look just like the small ones from known **MEK-STRUCT** outfits. The main name, **METALLBAUKASTEN**, on each lid, is stylised in a way unique to Quelle, and the 'good play' logo (above) is in the top left corner of the 600 box below it. The two larger sets contain a Motor, and the 600 has the Sound/Light Unit. The sets are priced at DM 99.95, 69.95, & 49.95.



• A photo of a **STABILA** Outfit (see 13/343), with a strikingly bright and modern looking lid (below). It is orange and yellow with a large clear panel in the centre so the manual underneath can be seen. The name is on the diagonal band top left, with the slogan TECHNIK FÜR *Mädchen* (Engineering for Girls) on the right. 7 red circles probably show real life activities, with an aeroplane in the one clearly visible, and what may be a girl using a microscope in another. I still find it hard to reconcile the image this creates with the woolly looking (literally) models in the manual.

4. From Thomas Morzinck. • A photo of a **STABILA No.1** Set, courtesy Karl Debik. Apparently the cover described above was only used for the No.2; the No.1 is a much plainer affair with no illustrations on the lid and no clear panel, just brown wording on a mottled light brown or orange ground. The Wheel Discs have a brass look, and the 4 hanks of wool are white, blue, light green & orange.

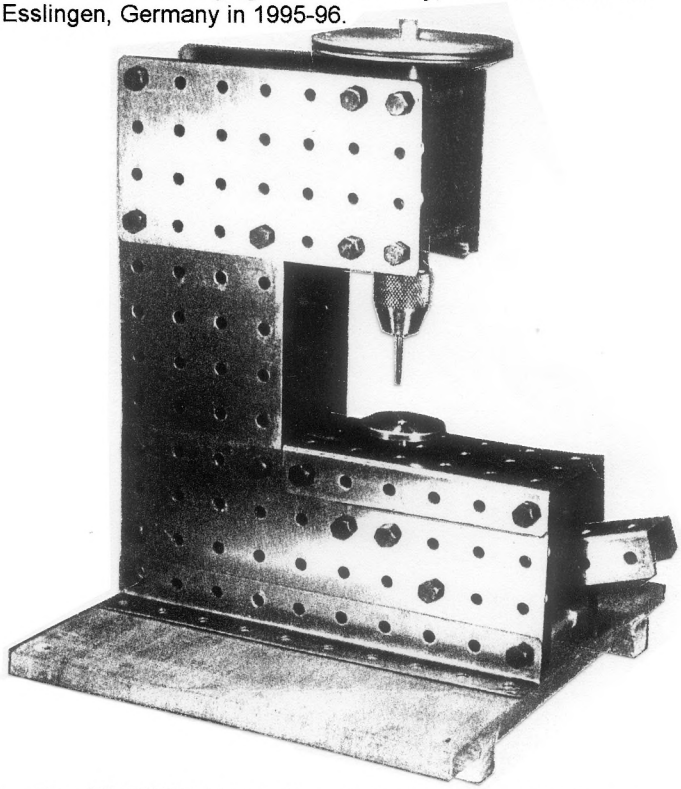
• Karl also explained that the **WALTHER'S INGENIEUR**



part called **Wulsteisen** (see 19/550), is a perforated strip with one edge formed over to stiffen it, as in the sketch opposite.

• **KOSMOS** (see 17/477) educational sets for children have been produced from 1930 to the present day, and have covered almost the full range of scientific topics: radio, chemistry, mechanics, electricity, optics/photography, biology, astronomy. The 'Mechanik' and 'Technikus' sets contained a lot of special parts to allow physical experiments with simple but working machines (including a steam engine). The only Set, apart from the 'Maschinen', that would really be called an 'mcs' was **TECHNOFIX** (15/419 & 17/477). In the late 1950s/early 1960s a similar set with plastic parts called **STECOFIX** was offered but it is a mystery because Franckh'sche Verlagsbuchhandlung of Stuttgart, who have produced and distributed KOSMOS sets since the beginning, have nothing in their archives about it. [An English language KOSMOS Set called **THE TECHNICAL KID** has strayed into MCS, and has 63 special parts including some for a steam engine. The manual was © 1952, and has on the cover '170 Experiments in elementary Physics, laying the foundation in Engineering, by W.Frœhlich'; W.Keller & Co. appears after the maker's name given above.]

Kosmos **MASCHINEN** was produced around 1930, and working models of a Lathe, Milling Machine, & the Drilling Machine below could be made, powered by a 110/220V motor. The model is on a wooden base, and the drill is held in what looks like a real chuck. This material has been taken from the catalogue of an exhibition of stone/metal/wooden sets belonging to Tobias Mey, that was held at Esslingen, Germany in 1995-96.

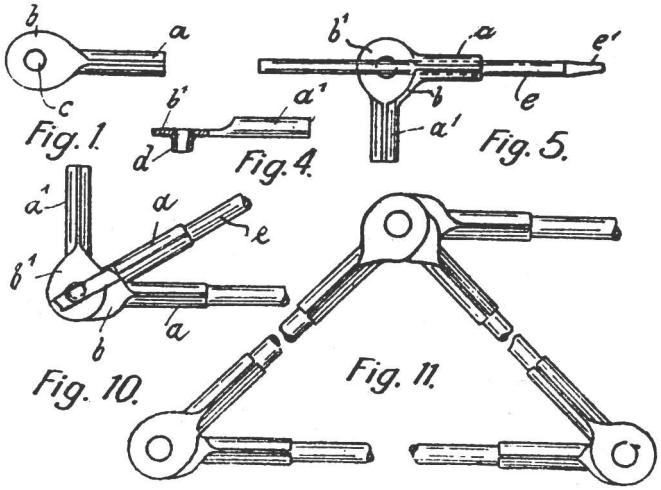


• The **METEOR** Windmill and Crane, (see 19/534) are very similar to the MÄRKLIN models Nr.1009-30 Windrad, and Nr.1010-30 Fahrbarer Drehkran, in Manual No.14910. [The 1009/1010 Sets appeared in 1957.]

• On **PONTIFEX** (19/527), the main parts are aluminium, and the basic pitch of the holes is 10mm. The holes are drilled by hand and are about 4mm Ø. The N&B found in the Set are not M4: the thread is near 5/32" BSW but slightly smaller in diameter and with a finer pitch. No doubt at that time whatever was available was used.

Snippet: TECHNOFIX A little about this unusual prewar German system, largely based on the Summary of a UK patent, was given in 15/419. Now more details are available from the full UK patent (thanks to David Hobson), and 2 items seen on Ebay: a Kosmos brochure, and a set, said to be largely complete.

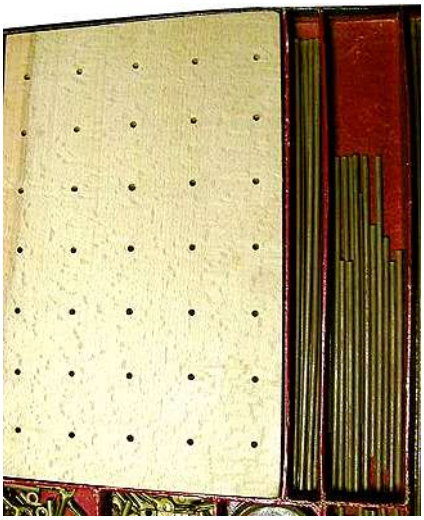
Starting with **the Patent**. The address of the applicant, Berthold Buxbaum, is given as Königin Luisestr. 16, Charlottenburg, Berlin. 2 or more Rods in one plane can be joined using one or more connectors (Fig.1 below, similar to a MECCANO



Rod & Strip Connector), and a linking connector (Fig.4), a similar part but with an upstand around the hole which fits into the hole in the Fig.1 connector(s). Then a rod through the outermost connector prevents the linking connector from falling out, as in Fig.5. Figs.10 & 11 show typical ways of creating structures.

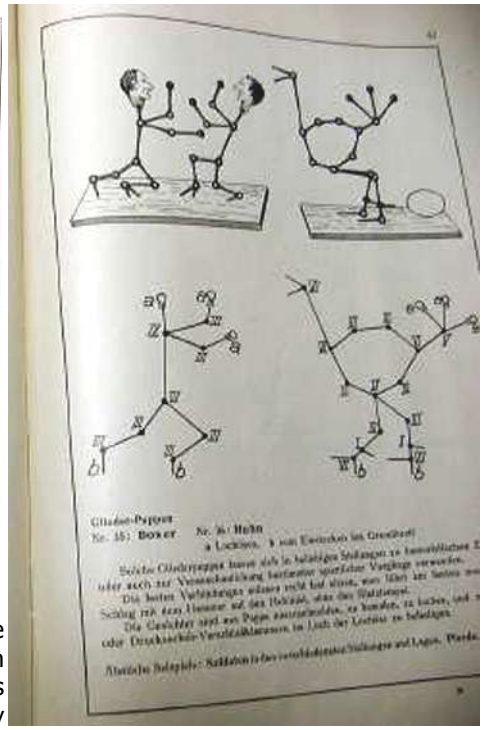
The Set is in a box 33*23*2cm and the lid is shown below. The small print on it talks of a system without screw connections, a claim stressed on the manual cover shown later, and in the Brochure. In the next column the upper & lower parts of the open box, and a close up of the small parts.

From the box's dimensions the Rods scale at 3mm Ø, but notice that in 17/477 the holes were reported as 3.5mm Ø. Again by scaling, the Pulley is 48mm Ø and the holes in the (wooden?) Base Board are at 32mm pitch. The 2 types of Connector are in the righthand compartment and the Linking ones have a dimple instead of an upstood hole. The parts in the lefthand compartment



appear to include Spacers, 2-Way, and possibly one or two 3-Way Connectors. Some of the Connectors have a ring of 8 'serrations' around the centre hole and I wonder if this in some way allows the arms to be locked at multiples of 45° apart.

The Manual is in German, with 80 pages. The cover is shown on the next page and 44 Abbildungen (diagrams) and 83 Baubeispielen (models) are claimed on it. 6 manual pages were shown on Ebay and the models on the two on the next page are Boxers, a Hen (which has probably just laid an egg), and a Travelling Crane. The other Ebay models were a Windmill, a Pigeon Loft, a Tent, a Sledge, and a simpler Travelling Crane. All are fairly simple frameworks with a few panels attached in some cases to add a degree of realism. Drawings of the panels are shown for two of the models and



one, the floor of the Pigeon Loft, is shown left. It looks as if it was meant to be attached by wrapping the end edges around the appropriate Rods, but it isn't clear what material was to be used, or who supplied it. Neither of the Cranes seems to have a winding handle.

History At the bottom of the Manual cover, under the Kosmos name & address, is '1926', presumably the publication date, and if so, 2 years earlier than the start date given in Eisenzeit & Baukästen. It is said that TECHNOFIX lasted until at least 1935 and if the joints were adequately rigid then their relatively neat & simple nature would make it one of the more successful 'rod' systems.

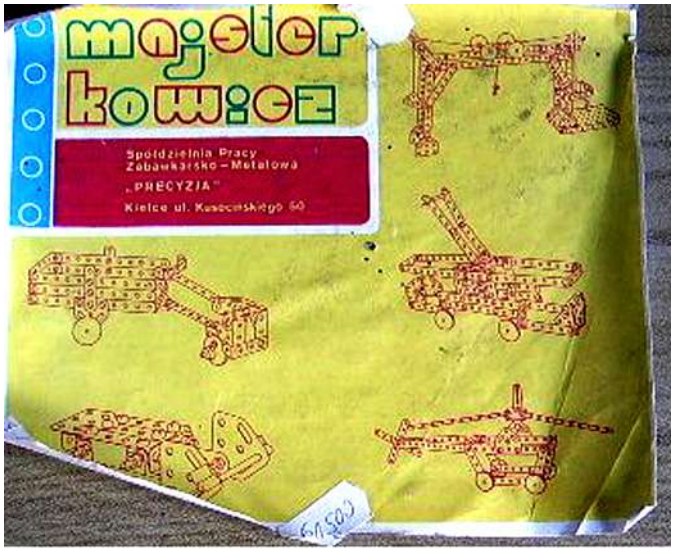
The manual models are a far cry from the Crane and Bridge on the lid but the latter were no doubt, in 1930s fashion, meant to be something to aspire to, like Meccano's Giant Block-setting Crane. It would take a good many of the present set to provide enough parts for either of them and as far as is known there was only the one size of set. But perhaps extra parts were also available.

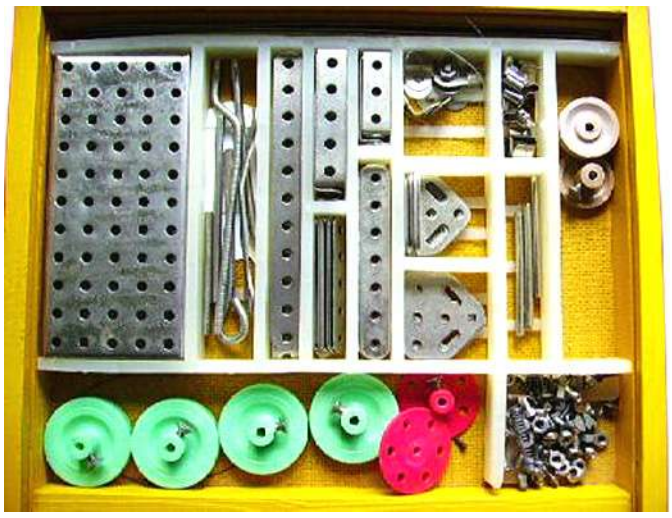
The 4 page **Brochure** shows the 2 types of Connector as in the Set, and a small Letter Balance, but otherwise the only point of interest is that the price of the Set was RM.9,50.

TECHNOFIX: S2 **OSN 39/1174**

Snippet. 'New' Polish System: MAJSTER KOWICZ

The photos show a wooden box with a sliding lid (right), a larger view of the label, and the parts in the base. MAJSTER KOWICZ means Handyman and the wording under the name on the label includes PHECYZIA, which may be the name of a company, and an address in Kielce, a town between Warsaw and Krakow. The box was said to measure 23*27½cm and the partitioning in it looks to be a quite complex plastic moulding. By scaling the pitch of the holes is around ½". The parts look fairly conventional with smooth Axles and tapped bosses (on, most likely, plastic Wheels). The wire Screwdriver is in the compartment with the Axles and its very small round handle can be seen in the centre at the bottom. The long slots in the Trunnions look useful. The models on the label don't bring any other system immediately to mind.





MAJSTER KOWICZ: S1 **OSN 39/1174**

Snippets. More TECHNOFIX Various Ebay photos show some variations in the outfit described in 39/1173, and 2 other, rather different sets. The only date is the 1926 on the manual with the OSN 39 set and the other sets are no doubt later.

One set is virtually identical to the OSN 39 outfit and its manual has the same cover and was said, as in OSN 39, to have 44 diagrams & 83 models. 4 models from it were shown, a Roundabout with no means of driving it, a Big Wheel with a driving Pulley on its Axle, & the two models in Fig.1. The lefthand model has, unlike the OSN 39 Crane, a crank to lift the 'load' and perhaps the explanatory notes would make clear what was to used for the winding drum & the load. Note also what I suppose are curved Rods in the base of the 'Eiffel' Tower – none of the sets seen include any such part.

A second set is again virtually identical to the OSN 39 outfit except that its box has 2 extra bays. One (Fig.2), in the Pulley compartment, has a Hook & a Ball Weight in it; the other, in one of the Rod bays, has small parts that might be Washers &/or Spacers but they are too blurry to be sure. The box size was given as 35*25*3cm, slightly larger that the OSN 39 set. The manual cover is again identical and the model that was shown (Fig.3) has a built-up crank handle, though how the Connectors grip the Rods I'm not sure.

The next set again has a similar box but with several extra small bays, but how many isn't sure because some of the partitioning is missing. Again the manual has the same cover and 44 diagrams/83 models. The big difference is the lid, see Fig.4 (with a part of the manual over one corner). Was longish hair and a bow fashionable wear for boys in 1920s Germany? Or is the child a girl? Or an attempt at a unisex figure?

Finally a completely different set, a Nr.1, 15½*33cm, in a black box as before, with the label in Fig.6 along the lid's length. It is red inside, and divided into 7 bays. The most obvious difference from the other sets is that it doesn't contain the Base Board and has small Pulleys (Fig.7), about 1" Ø, instead of the 2" type. That there was also a Nr.2 set is shown by the manual cover (Fig.8) which lists the number of models for each set in the bottom corners (in 5 languages), possibly 15 or 18 for the Nr.1 & 30 for the Nr.2. As far as is known none of the sets described earlier had a set number, and it isn't known if the Nr.2 matched them in content, or if its packaging matched the Nr.1. None of the 5 models seen, a small Crane; 2 small Barrows; the Sleigh below (with curved front runners); & the larger Windmill in Fig.9, certainly a Nr.2 model, uses the larger Pulley, though it is in the models on the lid label & manual cover.

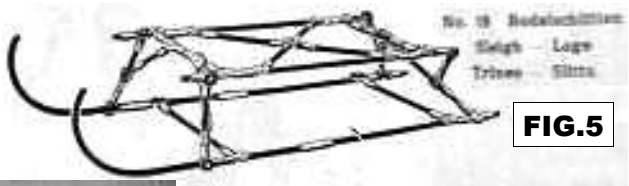


FIG.5

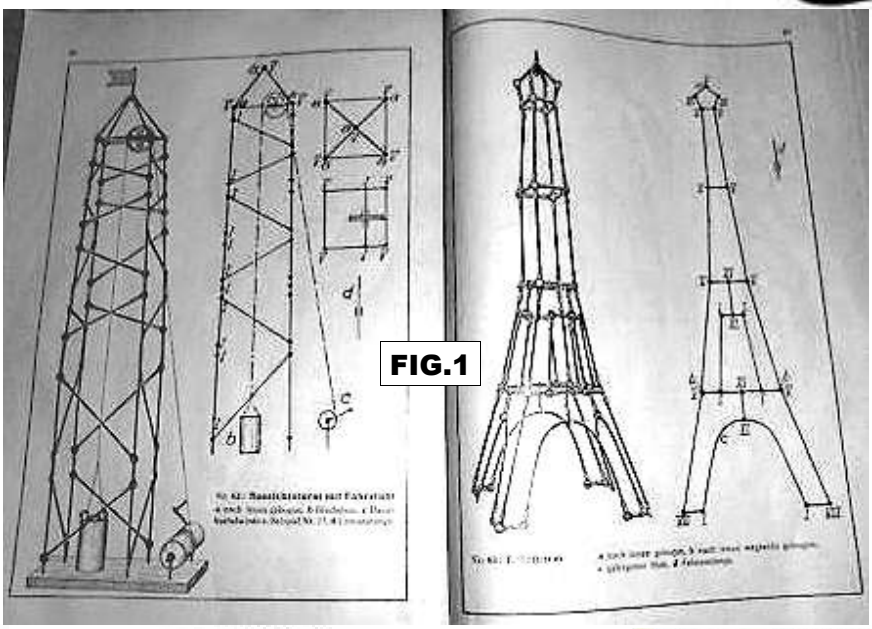


FIG.1

FIG.6

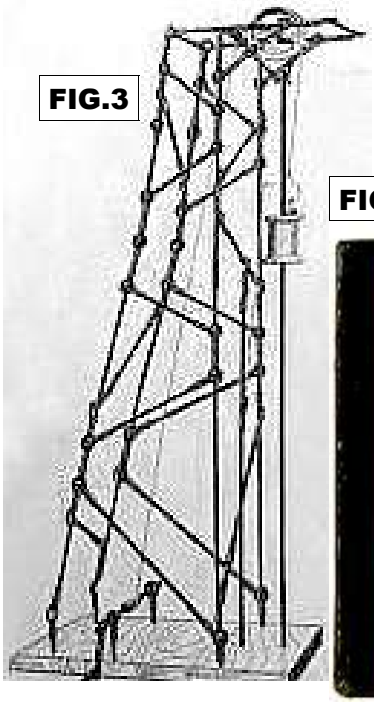


FIG.3


FIG.2

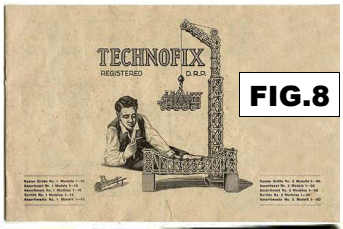


FIG.8

FIG.4

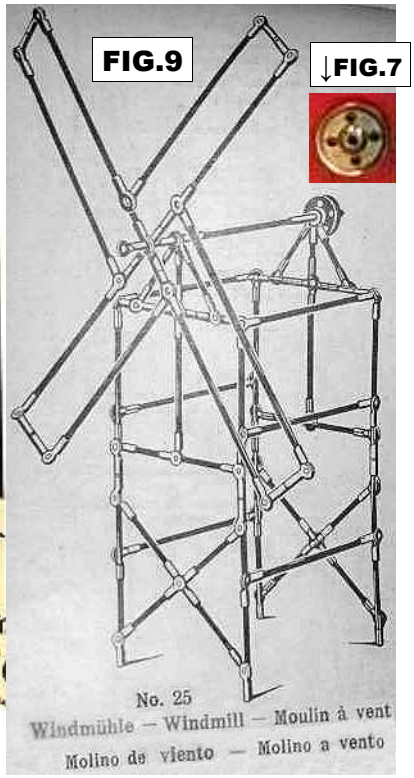


FIG.9

↓FIG.7