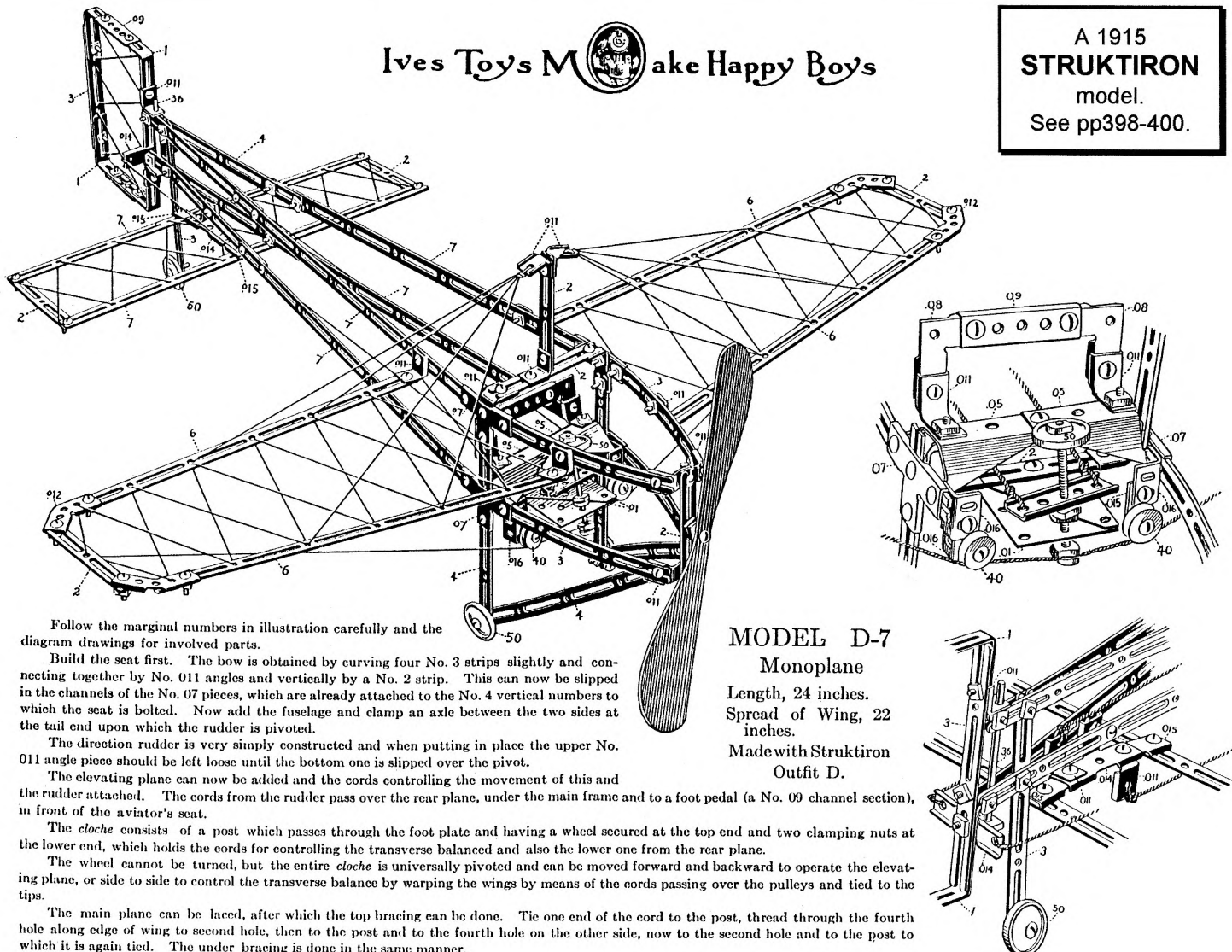


EDITORIAL Information which Jeannot Buteux kindly supplied, plus extra details from Eisenzeit, have led to over 8 pages of notes in this Issue on German systems, many of them new to me. This has meant holding over several pieces but I thought it best not to split the German material - it makes for easier reference later on to have everything in one place.

I'm somewhat behind in producing Extra MCS Sheets and this seems a good time to check on what recipients want from them. So, some questions: 1. When there's little available beyond what has appeared in OSN, except larger but similar illustrations, do you want MCS Sheets? 2. When there is more information, say another model from a manual, but where important areas are lacking, for

example the Set Contents, do you want what is available immediately or would you prefer to wait until more details come along? 3. Many new sets are being produced by STEEL TEC and to a lesser extent by MÄRKLIN and others, and often the combined Illustrated Parts List/Set Contents runs to several pages for each set - do you want the normal full details for these sets, and if not what do you think appropriate? 4. The MCS entry for several major systems, STABIL, MÄRKLIN and ERECTOR for instance, need fairly extensive revision and expansion in the light of new knowledge - how much detail do you require, and what priority should be given to such updating? Other comments on MCS and the Extra Sheets would also be welcome.



Ives Toys  Make Happy Boys

A 1915
STRUKTIRON
model.
See pp398-400.

Follow the marginal numbers in illustration carefully and the diagram drawings for involved parts.

Build the seat first. The bow is obtained by curving four No. 3 strips slightly and connecting together by No. 011 angles and vertically by a No. 2 strip. This can now be slipped in the channels of the No. 07 pieces, which are already attached to the No. 4 vertical numbers to which the seat is bolted. Now add the fuselage and clamp an axle between the two sides at the tail end upon which the rudder is pivoted.

The direction rudder is very simply constructed and when putting in place the upper No. 011 angle piece should be left loose until the bottom one is slipped over the pivot.

The elevating plane can now be added and the cords controlling the movement of this and the rudder attached. The cords from the rudder pass over the rear plane, under the main frame and to a foot pedal (a No. 09 channel section), in front of the aviator's seat.

The *cloche* consists of a post which passes through the foot plate and having a wheel secured at the top end and two clamping nuts at the lower end, which holds the cords for controlling the transverse balance and also the lower one from the rear plane.

The wheel cannot be turned, but the entire *cloche* is universally pivoted and can be moved forward and backward to operate the elevating plane, or side to side to control the transverse balance by warping the wings by means of the cords passing over the pulleys and tied to the tips.

The main plane can be laced, after which the top bracing can be done. Tie one end of the cord to the post, thread through the fourth hole along edge of wing to second hole, then to the post and to the fourth hole on the other side, now to the second hole and to the post to which it is again tied. The under bracing is done in the same manner.

MODEL D-7 Monoplane

Length, 24 inches.
Spread of Wing, 22 inches.

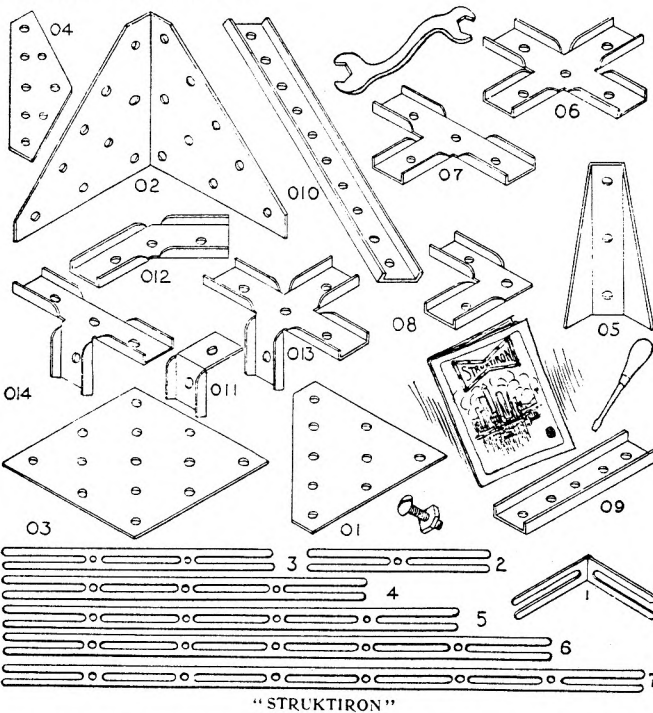
Made with Struktiron
Outfit D.

Notes on STRUKTIRON This account is based on a copy of a manual and comprehensive notes, kindly supplied by Kendrick Bisset, and thanks are also due to Richard Symonds for sending photos of his set and parts, and a Strip, my only (much prized) STRUKTIRON part.

This early American system was made by The Ives Manufacturing Corporation of Bridgeport, Connecticut, well known for their toy trains, and was in some ways the most original of the several major pre-WW1 American constructional toys. Certainly to my eyes it is the most attractive with its $\frac{3}{8}$ " wide slotted Strips and with most of the parts painted satin black.

STRUKTIRON was included in Ives' 1913 catalogue and may have been on sale late in 1912. Sets were numbered from 0 to 6, and the largest contained 360 Strips and 360 N&B. The range of parts at that time was quite small though - in addition to those shown below, Wheels, Axles, and Green and Red Semaphore Arms were listed, but not numbered or illustrated, and were not included in any of the Sets. The holes are 3 to 3.1mm Ø; their spacing varies but is often $\frac{5}{8}$ " (15.9mm), in #02 for instance, while the holes in the Strips are at $\frac{19}{16}$ " centres. A few dimensions to give an idea of size: the length of Strips #2-7 is $1\frac{1}{2}$ " times the PN (the PN is also the number of slots in each Strip); the Brackets fit snugly around the Strips and their 'lips' are about 1.5mm deep; and #09 and 010 are 41.5 and 73.5mm long.

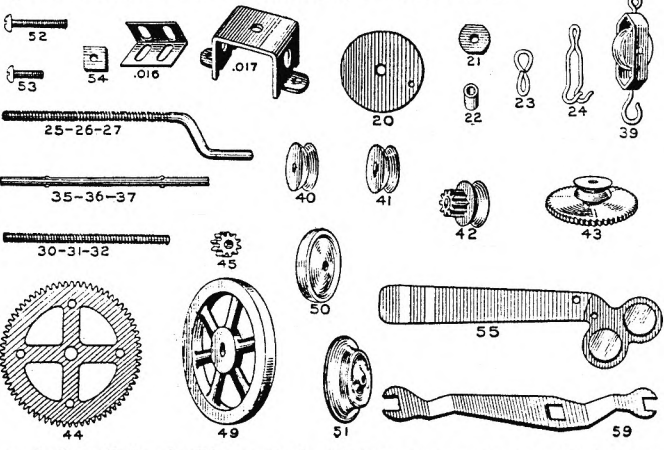
Unlike later catalogues, no models were shown apart from some publicity drawings of bridges on the first of the 3 (out of 24) pages devoted to STRUKTIRON. 4 electric motors (Nos.252,254,256,258) were illustrated elsewhere in the catalogue but it wasn't stated that they were intended for use with STRUKTIRON.



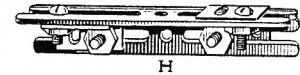
15 of the 36 pages in the 1914 catalogue were devoted to STRUKTIRON and models were shown for each of the sets. There was no other manual, the catalogue was included in each outfit. A Summary of it is given at the end. 54 parts were listed, all now numbered though not consecutively. Most of the new parts are illustrated at the top of the next column - important innovations were:

- Axles with 'nibs' on them (35-37, 3.1mm Ø, 1-1½" across the nibs), and Flanged Wheels (51), no doubt for use on railway wagons. Perhaps these were the ones listed in

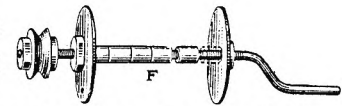
1913. Another Plain Wheel, #50, of tinplate, was about 1"Ø.
 • Threaded Spindles (30-32, 1½-3¼" long) and threaded Crank Handles (1½-3" of thread) on which wheels and gears could be locked with nuts, as in STABIL.



- A Small Angle Piece, 016, 17.7mm long, to join Strips to make angle girders. As shown at 'H' opposite it could be used on the inside or the outside.

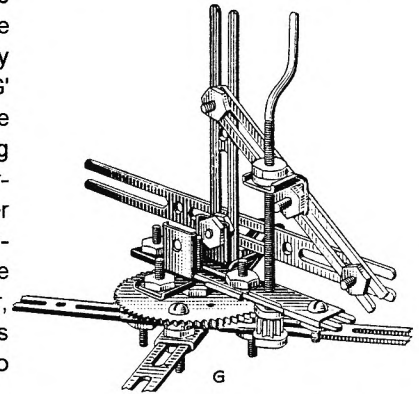


- Discs (20) and Sleeves (22) to make a winding drum, as in 'F' opposite.



- Square Nuts though the earlier hex ones were still shown in the models.

The Semaphore Arm (55) was illustrated (90mm o/a), and there was a similar one with a fishtail end. Two wire Links (23, 24) were listed but weren't in the outfits. The Tackle Block was 43mm long overall. #40 is described as 'Pulley, small hole' and 41 as 'Pulley, large hole': #40 is 14mm Ø and 5mm thick. #49 looks about 2"Ø. The Gears are 40 DP: the Pinion is listed as $\frac{1}{4}$ "Ø, and the Gear, 45, as $1\frac{7}{8}$ ". They are shown in use at 'G' and are locked onto the shaft by the Clamping Nuts (21): they were circular with a flat on either side (7.2mm A/F). Ordinary Nuts couldn't be used because, see later, the thread on these parts was slightly different to that of the N&B.



6 sets, A-F were available and compared to those of 1913, they equated roughly to the 1-6, but with rather fewer parts, and at about half the 1913 prices - \$10 for the F against \$18 for the No.6. The \$10 brought 325 N&B, almost as many as in the No.6, and 411 other parts against 601. Surprisingly these still did not include any Threaded Spindles and the only Wheels were the small #50 - no Flanged Wheels or Spoked Wheels, and only 1 Gear and 1 Pinion.

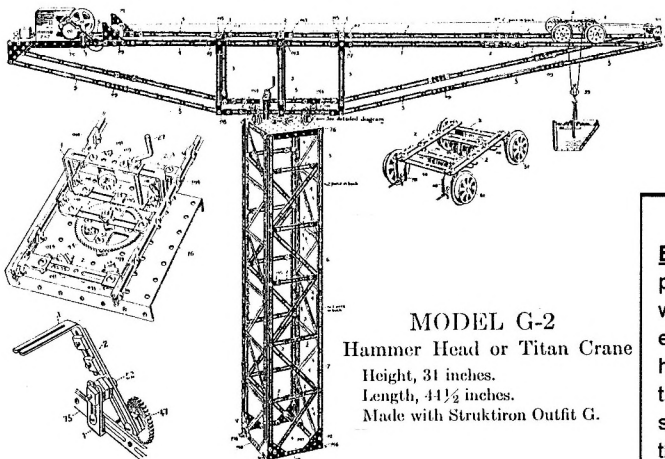
Indeed most of the models were basically static, a number of railroad bridges and signals, other bridges, cranes, a windmill, and so on. 41 models in all for the 6 sets, but as well 11 Special Models which were more of the same really but needed extra parts, sometimes many more, such as 825 N&B for the largest, a Railroad Bridge. The Railroad Bridge at the top of the next page needed 531. Only one model, a Crane, was fitted with a motor, a No.260 which had suitable reduction gearing. Motors 252, 254 & 256 were also listed.

Bolts are 4-36 thread, but the 'Threaded Spindles' are 40 tpi with a slightly larger diameter (.116"±)! Grub Screws for the bosses are listed as 5-40, but there are none in the set to verify the size. The Nuts are square, 7.2mm A/F; the Bolts have roundheads, 5.9mm Ø. Both are brass plated steel.

Many of the smaller parts, #011 for example, have the part number and 'PAT APPD FOR' stamped on them. In some cases the number is incorrect (011 on 015).

I built a manual model, the 'Hammer Head or Titan Crane' shown below, adapted a bit because I don't have a Motor. These comments are perhaps somewhat prejudiced by my long and happy experience with a large collection of MECCANO. The STRUKTIRON Bolts seemed quite thin and overly long but only the latter had any effect on building, requiring some Bolts to be inserted 'inside out' because the ends would interfere if assembled in the usual fashion. The Nuts are quite large so that a proper grip is possible on the slotted pieces, and again I found that they interfered with each other in tight areas. The Strips (called Straight Sections) are quite thick (1/16", 1.6mm) and surprisingly sturdy. Using the open-ended slots to connect pieces seemed like a bad idea, but it all came out very strong. The lack of Angle Girders made the longer assemblies rather wobbly and the rails for the traveling 'bogey' have a definite sideways bow. It does work though. It was an unpleasant surprise to discover the different threads on the 'Spindles' and Bolts.

The model illustration is not very clear in some of the details, but a satisfying crane finally emerged. It was fun remembering that the set is 80 years old, and trying to guess what some youngster thought about as he (or she?) used the outfit when it was brand new."



Finally some of Kendrick's notes that have not been mentioned so far: All parts seen are black with the following exceptions. Brass: Threaded Spindles and Crank Handles (the Axles with nibs on them are steel); 14mm Ø Pulleys; all Gears even the small Pinion, #45, which is listed as steel; and the Pawl, though Richard's is black. The Wheel 50-I is orange, and the larger Flanged Wheel, 51-B is red (it may be as used in Ives trains). The blunt-ended Semaphore Arm is red and the fishtail-type green - Richard's are both red. The Cord is orange - Richard's is black.

Brackets and connecting parts are nearly all .9mm thick, as are the Flanged Plates and the Pawl. The sides of the Bucket are 1.2mm thick and the remainder .4mm.

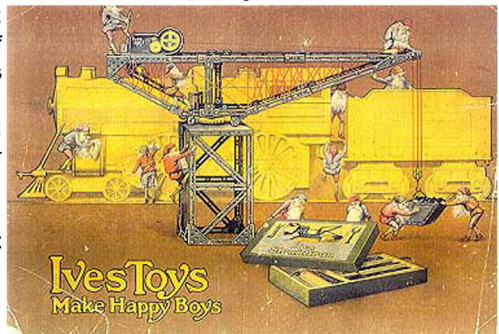
His Spanner, #59, is much more like the MECCANO pattern than the one shown in the Illustrated Parts.

SUMMARY OF MANUAL •Name: STRUKTIRON •Details of maker: The Ives Manufacturing Corp. Factory: Bridgeport, Con-

necticut. Sales: Room 432, Fifth Avenue Building, Broadway & Fifth Avenue & 23rd Street, New York. •Dates &/or Ref Nos: none. •Page size: 254*170mm deep. •No. of pages: 32 + covers. •Language: English. •Printing: Green covers; black drawings/photos. •Page Nos. of Illustrated Parts & highest PN: 32,59. •Page Nos. of Parts List/Set Contents & highest PN: IBC,59. •Sets covered: A-F. •No. of models for each set: 13,7,5,4,8,4. •Name, Model No., Page No. of first & last model of each set: A: DOLL CRIB,A1,20; WIND MILL,A13,21. B: R. R. BRIDGE WITH SIGNAL,B1,22; SEMAPHORE,B7,22. C: RAILROAD BRIDGE,C1,23; RAILROAD LIFT BRIDGE,C5,23. D: SHOOT THE CHUTE, D1,24; SIGNAL BRIDGE,D4,24. E: LAWN SWING,E1,25; RAILROAD BRIDGE,E8,26. F: "TWO AND ONE-HALF TON" INVERTED POST CRANE, F1,27; PORTAL CRANE,F4,28. •Other notes: i. This is part of an Ives catalogue, said to be from 1914, starting on p19. ii. Details from a reprint. iii. 11 Special Models also shown, from No.1 ELECTRIC DERRICK on p20, to No.11 RAILROAD BRIDGE on p30, with the parts needed on p31. iv. Motors Nos.252,254,256,260 and transformers, etc are on p2.

SUMMARY OF MANUAL [Details which are as above are not repeated] •No. of pages: 64 + covers. •Printing: Greeny-brown covers with train on front and crane on rear (below). •Page Nos. of Illustrated

Parts & highest PN: 29,91. •Page Nos. of Parts List/Set Contents & highest PN: IBC,91 (+262). •Sets covered: C-I. •No. of models for each set: 9,8,8,5,5,3,3. •Name, Model No., Page No. of first & last model of each set: C: Wind Mill,C-1,30; Deck Bridge,C-9,33.



D: High Level Foot Bridge,D-1,34; Aeroscope,D-9,38. E: Titan Crane,E-1,39; Aerial Carousel,E-8,46. F: Tower Derrick,F-1,47; Dock Crane,F-5,51. G: Dock Crane,G-1,52; Howe Truss for Through Bridge,G-5,56. H: Suspension Bridge,H-1,57; Sight Seeing Tower,H-3,59. I: Elevated Railroad with Station,I-1,60-61; Cantilever Bridge,I-3,64. •Other notes: i. From an Ives 1915 catalogue, starting at p28. ii. Motors Nos. 252,256,260,262, transformers, etc are shown on p15. iii. There is no model D-8.

Early ERECTOR Girders Don Redmond wrote that Lou Boselli had pointed out that the original ERECTOR (1" wide lattice) Girder, P32-12, was 12" long (overall), and that two 6" Girders (P32-6) had to be joined end-to-end by a P5 Straight Angle Piece (1*2" flat bracket with centre hole) to make the same length. In 1921 the 12" Girder was replaced by the 11" long P64, so that two 6" could be bolted together to give the same length. This is mentioned in *Greenberg*, p67, but the reason for the shorter length isn't given. This change helps to date old sets. [Joining the P32-6 parts I have with a P5 doesn't really work that well because their hole centres are 5" and the outer holes of the P5 are at 1 1/8". So that makes 11 1/8" for the combined parts, against the measured 10 7/8" centres for the holes in the P32-12. I haven't any P64 but their holes would presumably have been at 10" centres. Another advantage of the new part was that it had one less diagonal brace and that meant, as with the shorter Girders, that two parts placed on top of one could either appear 'single braced' or if rotated end-to-end, 'double braced'. The 6" Girder was renumbered P9 in 1921 but remained unchanged; the 3" Girder; P32-3, became P8 and the piercing, which had been 3 small isosceles triangles, was changed to the same pattern as the other Girders. Measuring the parts I have, the overall length was originally nearly 3 3/4" with the holes at 2 1/8" centres; afterwards 3" overall and 2" centres.]

Don also wrote "that among a mixed lot was an early ERECTOR No.2 set and the Girders were the later sort, 3, 6, & 11" long. Instead of being in the usual bright steel they were all black enamelled, and appeared not to have been home-painted. I see no mention of these in *Greenberg*. There was also one of the flat 6*3" Baseplates in black, thicker at .031" than a .021" bright steel one I have, and with badly sheared edges, more so on the long sides. The Nuts were 3/8" square and I don't recollect having noticed such large ones in other sets of this period."

News of AMI LAC In the last few years I had heard from time to time that AMI LAC was still being made near Milan, but I'd no details until Tony Matthewman kindly sent me 2 glossy leaflets that he picked up at a German trade fair earlier this year. The name of the manufacturer used to be Alemanni Leonida but a business card that Tony also enclosed has 'LAC di Alemanni Ausonio' on it. The address is the same as it was before: Vicolo Dragoni, 5, 20071 Casalpusterlengo. Tel/Fax: 0377 84225/84120.

The first leaflet is for a range of 5 standard outfits, AMI 2 to AMI 6, and there's a photo of each showing at least some of the contents. Sets 2-5 are packed in black, or perhaps very dark blue, boxes with 6 models on the left of the lid and a slab of small print on the right. The parts are housed in white moulded plastic trays, 1 for Sets 2 & 3, 2 (layers) for No.4, and 3 for No.5. The No.6 is in a wooden box with 4 trays/layers; the outside of the lid isn't visible.

The main parts that can be seen in the No.2 are a 5*11 Flanged Plate, Strips up to 11h and 5*1*5 DAS, 5h Curved Strips, Trunnions, a 3*5h Flexible Plate, a Bush Wheel, and 4x1" Pulleys. The additional parts in the No.6 are Flanged Sector Plates; 25h Strips, A/Gs, Braced Girders; 4x3" & 2x2" Pulleys; 11h Flat Girders; Flexible Plates up to 5*7h; and Windmill Sails.

I have, courtesy of Malcolm Hanson and Richard Symonds, photos of 2 earlier sets; a No.5 in a wooden box, and the trays from a No.6. As far as can be seen the current sets contain the same types of parts as the earlier ones, and the quantities may also be similar, though one can't be so sure about that.

The AMI LAC range encompasses both MECCANO and MÄRKLIN-style parts, and often both patterns are included where there were differences. In the No.6 there are 2 types of 5h Curved Strips, the MECCANO 90a and the MÄRKLIN slotted type. Generally though only one style is included, with MECCANO Braced Girders (open ended), 2 & 3" Pulleys, and Trunnions, but MÄRKLIN Flanged Plates, DAS, and 3*1*3h Double Bracket. The Flexible Plates belong to neither with, as can be seen below, alternate holes and slots along the lengthways edges. Not having all the holes in the ends slotted seems to me a disadvantage.

AMI LAC parts were always finished in a variety of colours and this is still true, but they are less sombre now, with iridescent and bright yellow, blue and red parts. The same pieces are often shown in different colours in different sets, but broadly Brackets and Strips less than 11h long are iridescent, longer Strips, DAS, and A/Gs are yellow, Pulleys are red, Flat Girders, Windmill Sails and Flexible Plates are blue, and Flanged Plates and Braced Girders are yellow or blue. Bosses are shown painted. The models on the lids have silver Strips, a yellow Flanged Plate, and red Pulleys

and Trunnions.

The manuals shown have the same cover (with a boy, a girl, and a green Crane) as earlier ones, and the small models on the box lids are all No.2 models in my manual from perhaps about 1970. But I couldn't find the 2 larger models that are on some lids, so some changes may have been made. One of the larger models has a MÄRKLIN-type 5h Ø Pulley whereas only the MECCANO version can be seen in the sets, but often in my manual the former was shown but the latter called up in the Parts Required.

The other leaflet is for 6 'i KITS', small sets with enough parts to make only the featured model. The boxes show the model on a blue ground, and are numbered 100-105, for, respectively, Treno (loco), Cavallo (rocking horse), Rullo Compressore (road roller), Aereo (aeroplane), ? (crane), and Nave (ship). Some of the text on the boxes is in several languages, but not the names of the models. The latter are very simple and not I think specially attractive, although the Rocking Horse is quite nice. I couldn't find any of them in the old manuals.

The colours of the parts are as above except that the Flexible Plates are variously yellow, red and blue. The separate parts needed for the Road Roller are shown and include a Flexible Plate that has the necessary 2 sharp bends in it ready made. The Flexible Plates look as if they are metal rather than plastic. The Ship's funnel in the photo of the model on the Leaflet appears to be a white plastic tube with a single hole for attachment by an Angle Bracket, but on the box it's shown as a Flexible Plate rolled to a very small radius.

Since there's a corner here I'll include Summaries of my manuals. If anyone has others with different models or covers, please get in touch. After producing sets for a year or so in about 1922-23, AMI LAC re-entered the market in 1956 with, it is said, the intention of making all the parts in the MECCANO and MÄRKLIN systems. If that were so they didn't quite succeed - in particular the only circular part larger than 100mm was the MÄRKLIN-style 150mm Flanged Disc. But there were, and perhaps still are, some 474 parts available (and listed in the manuals described below) including a number of their own pieces, notably a range of 'L' and 'Z' section Plates.

SUMMARY OF MANUAL •Name: AMI LAC Costruzioni Meccaniche #9
 •Details of maker: Leonida Alemanni, Casalpusterlengo. •Dates &/or Ref Nos: none. •Page size: 244*162mm deep. •No. of pages: 84 inc covers (no page nos.). •Language: Italian. •Printing: line drawings of most models but halftones from p68 on; cover as opposite. •Page Nos. of Illustrated Parts List & highest PN: 5-18,220/11. [No Set Contents] •Sets covered: 3-9.
 •No. of models for each set: 38,33,24,20,15,10,8. •Name, Model No., Page No. of first & last model of each set [no Model Nos.]: 3: Aratro,27;Slitta,34. 4: Barca a vela,35; Carriola,42. 5: Vagone, 43; Carretto,50. 6:

Scavatrice,51; Martello, 58. 7: Sistema di trasmissione, 59; Maglio, 66. 8: Altalena,67; Furgone,74. Grue per cantiere,75; Macchina per la costruzione funi metalliche,82. •Other notes: •Useful constructions on pp19-26; •Details of sideplate motor on p83; •Manual was bought new from factory in 1973.

SUMMARY OF MANUAL [Details which are as above aren't repeated] •Name: #2 replaces #9. •No. of pages: 36 (no nos.)
 •Printing: all line drawings. •Sets covered: 1-2. •No. of models for each set: 46,41.
 •Name, Page No. of first & last model of each set: 1: Indicatore stradale,19; Pinza estensibile,26. 2: Ancora,27; Ancora,34.
 •Other notes: •No constructional details, motor on p35. •This manual was probably printed later than the one above because there's a new line on p4 saying that the price of individual parts has risen by 25%. When the #9 was bought the increase was 50% but this wasn't in the manual.



REF. AMI 3 ; da 6 a 8 anni

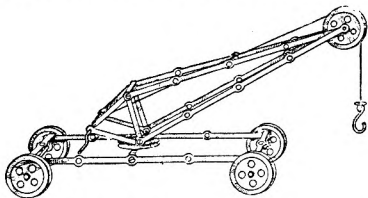


MORE from KINCOLAND

The details given in 14/372, essentially those in MCS, are only part of the Kinco story. David Hobson kindly sent copies of the ads he found in *Games & Toys* which give the details. Kincoland by the way, was the telegraphic address, and the trading name used by British Metal (Kingston) Ltd. for all Kinco toy products after about mid-1920. Their trademark is shown opposite.



The first ad was in March 1920 and announced Set No.1 of **KINCO MECHANICAL ENGINEER** at 6/- retail, to make over 200 different models. Several were shown including the Crane below, and the parts are the ones in MCS and OSN 14. In May **KINCO ENGINEERING** Sets 1-4 were advertised (6/6 to 26/-) plus Accessory Outfits 1a-3a at 6/6 each. G&T noted that a sample set 'is much better finished than hitherto'. A different selection of models



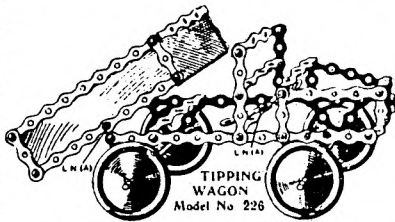
was shown using the same sort of parts. Similar ads continued through May 1922, with different models in some including a few larger ones. A Note in February 1921 ad said 'Strips - finished nickel. Pulleys, Nuts, Bolts - finished brass.'

Then in October the ad referred to **KINCO ENGINEER**, with Sets 1-4 at 3/6 to 14/- and Accessory Outfits at 3/6. Two models were shown including the Wagon below (what the two LN(A) labels mean isn't known). The main difference is that the Strips no longer have their holes in 'islands', but have a regular wavy edge. They are very similar to the ones in the second Greenwald patent for 'economy' strips (14/372). The ad also includes the words 'Interchangeable with all other well-known makes', presumably including MECCANO. In that case the hole spacing might be 1/2" and the holes a little larger than before to admit MECCANO Bolts. None of these parts are known, nor is a manual - scaling the parts shown in the models in the ad gives either a rather longer pitch or smaller holes, but that of course isn't conclusive.

Editorial notes in the October and later issues refer to 'Kinco Engineering' rather than 'Kinco Engineer', so it's possible that both names were used. The ads continued regularly until January 1924, after which no further references were found.

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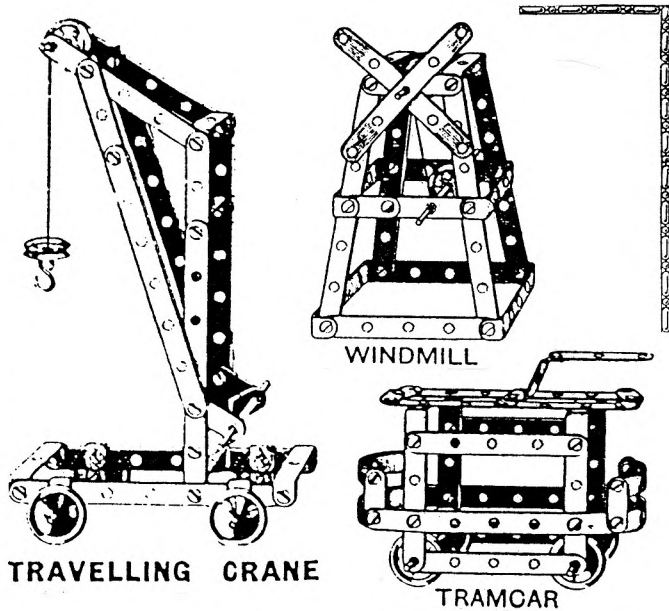


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BILDO This was another Kinco constructional outfit from the 1920-23 period. The first mention was a short note in the December 1920 G&T headed, 'A Rank and File Engineering Outfit' - 'latest comer among all metal construction toys is BILDO, the only 1/6 Engineering Outfit in the world (so far as we know!) ... price astonishing ... thoroughly workmanlike ... sturdy ... well made ... skilful invention ... 60-100 models, etc. Kincoland, Kingston-on-Thames, have a limited number for immediate delivery.'

The next mention was an ad in June 1922 for BILDO at 1/6 retail, in which the Crane at the top of the next column was shown, and it was stated that over 150 models could be made. This ad was repeated in the next 3 issues, and then in October, a general Kincoland ad included 'Kinco' BILDO. To quote, 'Builds over 150 models. Each box con



'KINCO' BILDO. Price 12/- doz.

tains 150 illustrations, 36 Strips, 5 Rods, 4 Motor Wheels, 2 Pulleys, 42 Clips and 2 Bending Tools. Price 12/- doz.' 6 models were shown, among them the two above next to the Crane.

That was the last reference to BILDO except that in February 1923, a list of exhibitors at the BIF included Kincoland, 'makers of KINCO ENGINEERING and BILDO'.

The BILDO models show 2, 3, 5, & 7-hole Strips, straight or bent into Brackets or DAS, perhaps using one of the Bending Tools. There's nothing to indicate the size of the holes or their pitch. The parts were no doubt held together by the Clips and they were most likely thin metal 'rivets' with mushroom-shaped heads, that could be bent over on either side of the parts to be joined. The heads can be seen in the models. Now for some thoughts from David. In the Crane and in another of the models in the ad, the main upright member is held by just the one Clip on either side at the bottom, and there's apparently nothing to keep it from toppling. But if the holes in the Strips were those star-shaped ones mentioned in 13/363, all would be well. In fact the model Lorry shown in the Greenwald star-shaped hole Patent (167244) in OSN 13 looks as if it could easily have been made from BILDO parts, and this was the M.Greenwald who held the Patent for the wavy Strips, and may thus have had that connection with Kinco as well. I think that when someone finds some BILDO Strips, they will have star shaped holes in them. And that would explain the 'skilful invention' phrase in the G&T 1920 write-up.

QUERIES 23. When I bought some **MÄRKLIN** parts in the early 1970s the **Flexible Plates** were made of aluminium and were painted a rich deep blue on one side and silver on the other. Incidentally the paint stayed on very well even when a sharp bend was made and then straightened. Are these Plates still aluminium and is one side still silver? When were any changes made? Also they were said to be new parts in a 1947 manual 71z, and were shown as blue/silver in the models that are shown in colour in the main part of the book, but on the cover some are red and some green. In the Märklin history (4/50) it was said that they were either blue/silver or red/ivory. What colours were actually produced and when?

MYSTERY PART No.1 The 5*4h ERECTOR Plate (1/7, 10/259). Don Redmond wrote that Lou Boselli had told him that this was part P45, Special Base Plate. I haven't been able to find this in any of the published Parts Lists but the P45 number was used from 1915 through 1919 for a fully perforated 5*4 flanged plate with flanges on the longer sides, called a Small Base Plate. It was included in the regular range of sets of that period. It may be significant that the Leaflet in which the flat Plate was shown (3/46) was © 1920.

MYSTERY PART No.3 This was the large TRIX-like Strip in 2/25. As explained elsewhere in this Issue, it may have come from the small East German M K A or M F C systems, both of which had ordinary and TRIX-style Strips.

MYSTERY PARTS No.24 These were the unusual formed Collar and Coupling from Don Redmond, and he has found another such Coupling and 7 Collars in a mixed lot which contained a quantity of AMERICAN MODEL BUILDER parts. They were strung on a wire with 5 solid brass AMB-type Collars and Don suggests that they are probably early AMB parts, although no illustration of them has been found so far in AMB literature.

MYSTERY PARTS No.29 This is a mystery system with parts, shown below at about 1/2-scale, rather similar to SUPERSONIC (14/367). Dave Taylor kindly lent them to me - he found them all together and they seem to be a near complete set but without box or manual. They may be Continental in origin because the thread used is M3, and the hole spacing, though there's no regular pattern to it, is usually easier to express in millimetres.



The light grey Half Nose Sections each have three 10mm Ø 'portholes', and join onto the end of a cylinder made up of similarly coloured Body Panels. Three of these overlap one hole to make up a circle 67mm in diameter, and each has 3 rows of circumferential holes, at 34mm centres, with 5 holes in each row. Parts that butt together are joined by Flat Brackets or the 38mm long Strips, which have only end

holes (at 28mm centres).

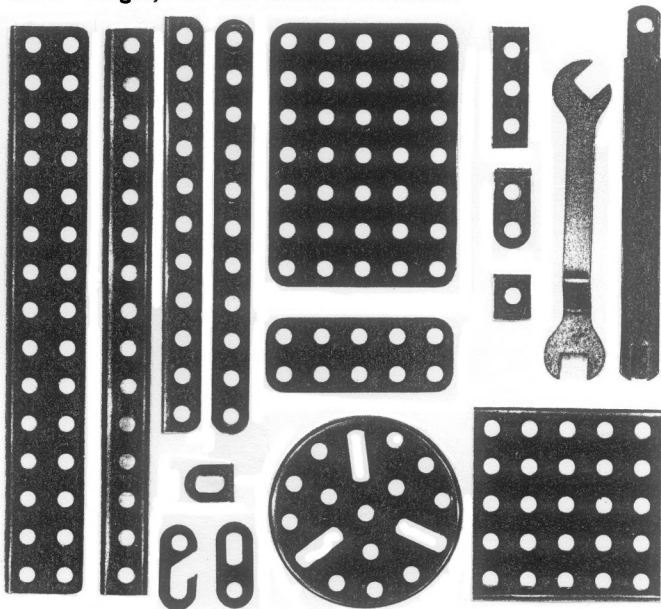
The red Large Fins are about 78mm high; the blue Small Fins 36mm. These can be attached using the Angle Brackets (which are formed Flat Brackets/Strips). All Brackets are 10mm wide and have a black metallic finish. 114mm long Nacelles, made of two hard black plastic Half Nacelles can be bolted around the ends of the Large Fins. They have moulded inside: '7607-1'; 'KM' in a diamond surround; and 'JIF'.

Wheels are light brown translucent plastic, 29mm Ø, and again are marked 'JIF'. A 3mm Ø, black Axle is 95mm long with 11mm threaded at each end. N&B are dull grey with small hex Nuts and RH Bolts in 2 lengths - one is 9mm u/h & the other 18mm, but with only 8mm threaded. Finally the Spanner, 75mm o/a with a 4.1mm hole in the end. All the other holes are about 3.5mm.

The parts are substantially made and seem to fit together well except that the holes in the Small Fin don't seem to quite line up with any other holes. Perhaps there are parts missing, but someone in the past has opened up a hole in each of the Large Fins to allow a Small Fin to be attached to it.

MYSTERY PARTS No.30 Another lot that Dave Taylor was good enough to lend me. It consists of about 150 parts (with no N&B) of 34 different types. All have a black metallic finish, a hole pitch of 10mm, and 4.1mm Ø holes, though 4.2 in a few. The different parts, including one or two that are rather unusual, are listed below - photocopies of those italicised are shown below at approximately 1/2-scale.

Strips: 11,9,7,6,5,4,3h. Between 10.0 and 10.1mm wide.
DAS: 1*5*2, 1*3*1, 2*1*2h. **Flanged Disc**, 51mm o/d with 4mm flange. **Double width Strips**, 15,11,5h long, **A/Gs**, 15,11,5h long.
1*2h A/Gs and **1*1*1h Channel Girders:** 20,15h long.
Flanged Plates with flanges on the sides underlined: 11*5, 7*3, 5*5h. **Perforated Plates:** 11*7h, 7*5h, 15*3h.
Hook, Nut Holder, Spanners, RH & LH with jaws 7mm wide. **Angle, Flat and Double Brackets.**



The parts are accurately made and well finished. Most are .031 or .033" thick, but the 1*1 A/Gs and the Flanged Plates are .020". The ends of all the Strips and Brackets, and the corners of most other parts are fully radiused, but a few have much smaller radii. The only slotted holes are in the Flat and Angle Brackets, and in the Flanged Disc.

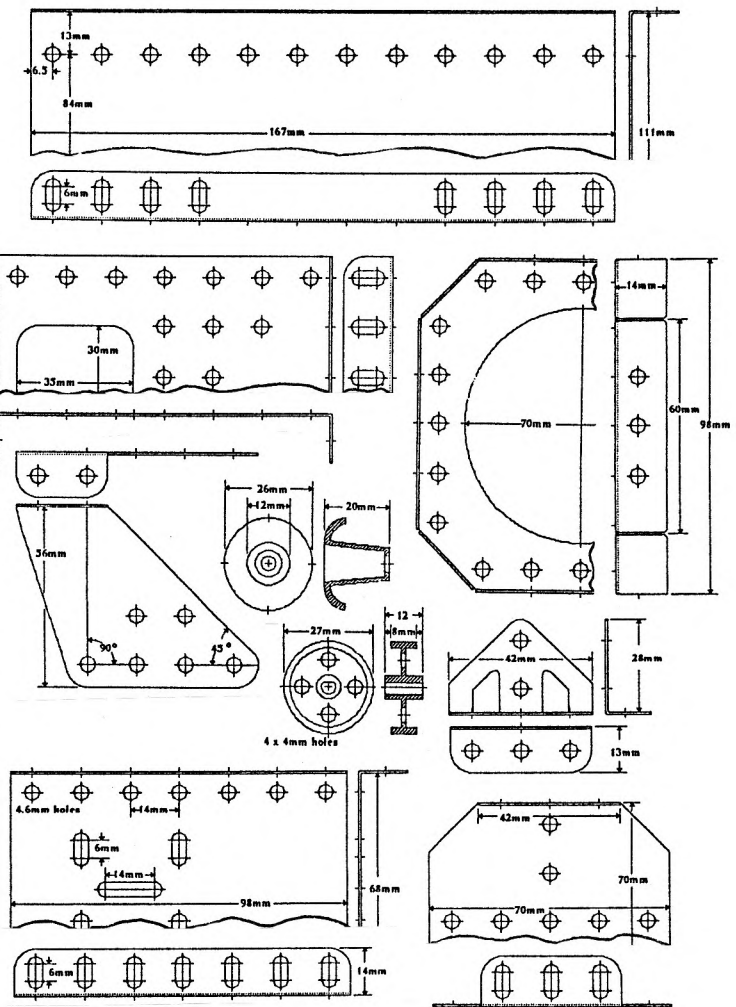
Some of the parts look like those of the Russian

SEL'KHOZTEKHNIKA (SEL for short, and it may be called KONSTRUKTOR (2) in earlier MCS/FB), particularly the unusual Flanged Disc. Other notable similarities are the colour, the 3 Flanged Plates, and the general lack of slotted holes. But there are some parts that don't occur in SEL, the Channel Girder and Hook for example, and many parts that don't correspond in size, even though the general type may be in both.

Perhaps there's no connection, or perhaps Dave's parts were from a larger SEL outfit. Or, given that some of the Russian systems are to an extent derivative, just possibly the mystery parts came from the as yet unknown prototype of the Russian system.

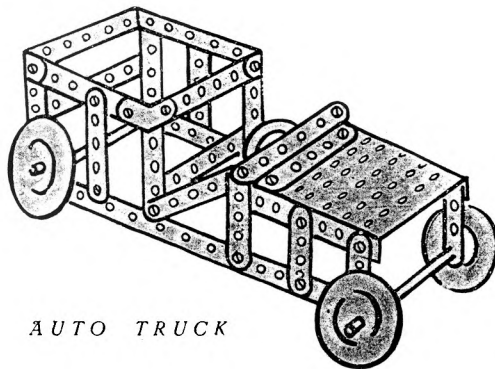
MYSTERY PARTS No.31 Thanks to Don Blakeborough in New Zealand for details of another lot of related parts. He mentioned that Space and Space Control transfers stuck to some of them suggest a theme set. Don sent the list of the parts below, and drawings of them, which are shown here at reduced scale, and in some cases only a half view is given for parts that are symmetrical. The holes are 4.6mm Ø at 14.0mm pitch.

- 3 **Trunnions**, 2 red, 1 black.
- **Octagonal Flanged Plates**: 2 x 98mm with circular cutout, flanged on all sides, black; 1 x 70mm, 2 flanges, black.
- **Rect. Flanged Plates**: 1 x 167*113mm, red; 2 x 7*5h with cutout, white; 2 x 98*70mm, white.
- **Flanged Fin**, 2 x LH, 2 x RH, zinc.
- 4 x **Roller Wheel ?**, grey plastic to fit shaft with flat.
- 3 x **Hub Centre ?**, grey plastic.
- **Screws** with Philips roundhead: 23 x6mm u/h; 1x18 u/h.
- 14 machined hex **Nuts**, 6.7*3.2mm thick (a MECCANO Bolt enters about half way).



Two ONADO Sets ONADO was a small UK system of some 34 different parts including a few unusual ones, but exactly what all the parts are isn't clear from the details in MCS. Recent finds provide some more information.

First, Frank Beadle was able to examine a set owned by Bob Field and kindly sent along some details. It appeared complete and the parts were clipped to a grey card with brass bifurcated paper clips - a method mentioned in



AUTO TRUCK

one of the two Leaflets that were with the Set. One of these shows 3 crudely drawn models under the heading 'Begin with these simple models'. No set numbers are given but one of the models, the Auto Truck above, couldn't have been made with the parts in the Set because it needs 4 Road Wheels. The other Leaflet has the makers name and address (Onado Industries Ltd., Faraday House, 8-10 Charing Cross Road, London, W.C.2), and an Introduction which mentions that the parts are 'preserved in oil to prevent corrosion'; that the No.2 Set contains 120 parts and the No.3, 175; and that 'an illustrated booklet is in course of preparation'. The Set seen has no indication of size on it but with many fewer than 120 parts, it is presumably a No.1.

The second Leaflet also has a List of Parts, with prices, and includes about half the parts listed in MCS. Details follow with where appropriate, the number of parts in the No.1 in square brackets.

- Strips with 23, 19, 15 [6], 9 [6], 5 [3] holes. 2h Strips called Links. 2h Angles (Brackets) [6]. 1*3*1 DAS [8], called 5 hole Double Angles.
- 5*7 and 7*7h [1] Chassis, which are 3*7 and 5*7h Flanged Plates with flanges on the 7h sides. A Flexible Plate, 9*5h.
- Tinplate balloon Wheels [2], about 1" dia. Pulley Wheels, fixed and loose. Spindles [1x4"]. Brass Collars [2] or Clips. Bent Crankshaft. Screwdriver [1 wire]. Flat 2-ended Spanner [1]. N&B.

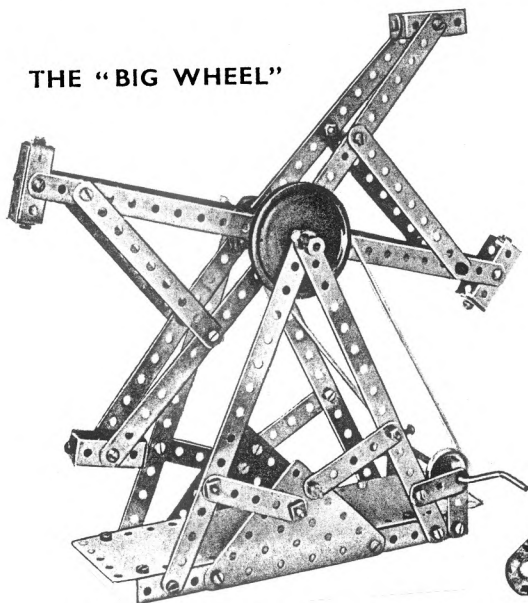
• The parts are either nickel plated or bare steel. The Screws in the Collars have a different thread to the N&B.

Judging by the illustrations on the box lid and their pastel colours, Frank judged that the Set might date from the 1930s. However the prices of the parts in the Leaflet don't support that - in those cases where a direct comparison can be made they are at least 2 or 3 times the maximum price of similar 1930s MECCANO parts. So that might date the Leaflet as 1941, when the price of MECCANO parts leapt up, or postwar. In the latter case the box itself might have been prewar stock.

The other find, thanks to Bob Curling, are the manual and remaining blue and red parts from a later set - the manual looks as if it is the one used for MCS. Some other parts will also be mentioned that came in a mixed lot.

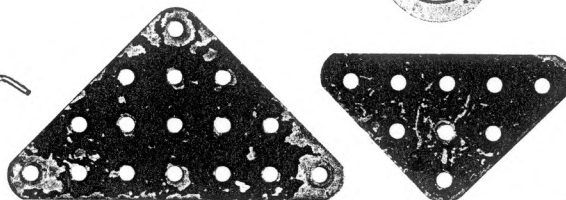
The manual has one good photo, on good quality art paper, of each of the 12 fairly ordinary models shown, 4 each

THE "BIG WHEEL"



PARTS REQUIRED

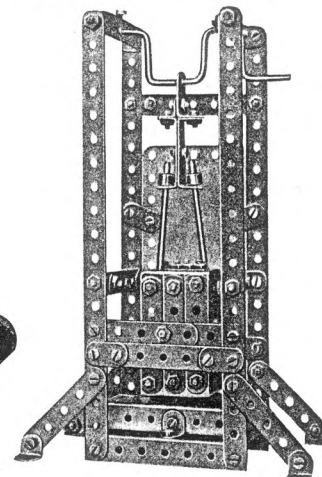
4	only 2 hole Strips
4	" 3 " "
4	" 5 " "
4	" 9 " "
4	" 15 " "
4	" 23 " "
2	" 15 " Angle Strips
12	" 5 " Double Angles
2	" 6 x 6 Triangle Plates
2	" 5 x 9 Flexible Plates
1	" Loose Pulley Wheel
1	" Fixed " "
1	" Large " "
1	" Spindle
1	" Winding Handle
Nuts and Bolts	



STEAM HAMMER

PARTS REQUIRED

4	only 19 hole Strips or	8	only 2 hole Angles
2	" 19 " "	1	" Crankshaft
2	" 15 " "	1	" 5 x 7 Chassis
12	" 9 " "	1	" 7 x 7 "
12	" 5 " "	6	" Brass Collars
8	" 2 " Links		Nuts and Bolts



for Sets 2, 3 and 4. The Introduction is almost identical to that in the No.1 Leaflet with the same reference to brass clips, and to Sets 2 & 3 (but no mention of No.4). The only major change is the omission of the 'preserved in oil', and instead, 'ONADO parts are beautifully coloured in Royal Blue and Crimson'. The Parts Required are given for each model and the names of the parts there isn't always consistent with the List of Parts (as in MCS). The one or two cases where this is of interest are mentioned in the notes on the parts that follow. The number of parts found in the Set are again given in brackets, but many are obviously missing.

• DATA (in mm) Strip (9-hole): •Hole pitch/dia, 12.7/4.1; •width, 12.7 (typical); •thickness, .80; •end radii, 7.1. Boss: •o/d, 9.5 (3/8"); •i/d, 4.11; •red painted brass; •single tapped. Thread: 5/32" BSW in Pulley boss; 4BA in Collars (no N&B seen). Axle Dia: 3.96. DP (Mod): NA. Nut & Bolt: not seen.

The parts seen are listed below. All holes are round.

- 19,15,9,5,2h Strips [2,2,6,6,8], and the 3h Strip called 3 hole Flat. Only the 19 and 3h, at 1.1mm, differ in thickness from the 9h. Widths vary from 12.6 to 12.9mm but most are 12.7 to 12.8. 2 hole Angles [3]. 1*3*1 DAS [10].
- The 2 sizes of Chassis [1 of each], which have sharp square corners and slightly smaller holes (4.0mm) than the Strips. The 5*9 Flexible Plate [1] is .40mm thick, with fully rounded corners and no centre hole.
- Balloon Wheels [4], 1.57"Ø that have tubular brass bushes with eyelet type ends. The Fixed Pulley [1] is 25.7mm Ø, and 4.2mm wide across the vee. Its boss has 6-point peening. The Loose Pulley [1] is the same overall size and has a small (8.2mmØ) brass boss, similar to the TEMSI equivalent. It has eyelet type peening and the bore is 3.97mm. Collars [3] are 3/8"Ø and 1/4" wide.
- The nominally 5/32" Spindles [3] are a tight fit in some of the parts, and are 4" long against the 3" in the Parts List. The (3") Crank Handle [1] is 4" long overall and has square bends. It is the Winding Handle of the List.
- The Screwdriver, abovete (x .5), is made of 1.25mm steel, nickel plated.
- If the N&B have the same 5/32 thread as in the Pulley boss, the thread in the Collar would be different to the N&B, as with the No.1 parts. All the Set Screws are steel and cheeseheaded - the one in the Pulley is painted red with a 6.0mm Ø head and 4 1/2mm u/h; the ones in the Collars are 6.3mm Ø and 6 1/2mm u/h, and look like plated commercial

screws. The Set Screws shown in the models have round heads. The Bolts in them are shown with cheeseheads, and the Nuts are mostly largish hexagonal, with a few square.

• The Strips and Brackets are painted a bright but flat looking royal blue; the Plates and circular parts a dull medium to dark red - more like red oxide than the crimson of the Manual. Apart from the width of the Strips, the parts are accurately made and quite well finished.

• In the mixed lot were 2 sizes of Triangular Plates (above), painted with a red quite close to the Set parts but glossier. The smaller one corresponds exactly to the 5 x 3 Triangle Plates shown in, and listed for, models in the Manual, and is presumably the Small Triangular Pierced Plate of the Parts List. A Large Triangular Pierced Plate is also in the List and a 6 x 6 Triangle Plate is called up for Big Wheel (above), the only time it is shown - as can be seen it's hole pattern is different to the larger Triangular Plate found in the lot.

Some of the other parts in the List are shown in the models. The 15 hole "L" section Channel (A/G), with square corners, and the Large Pulley, are in the Big Wheel. The Bent Crankshaft is used in a Steam Hammer (above). The 7 x 5h Pierced Rect. Plate, with round corners, is used in several models, but, as in the Naval Sloop in MCS, is always called up as a 5 x 7h Flexible Plate.

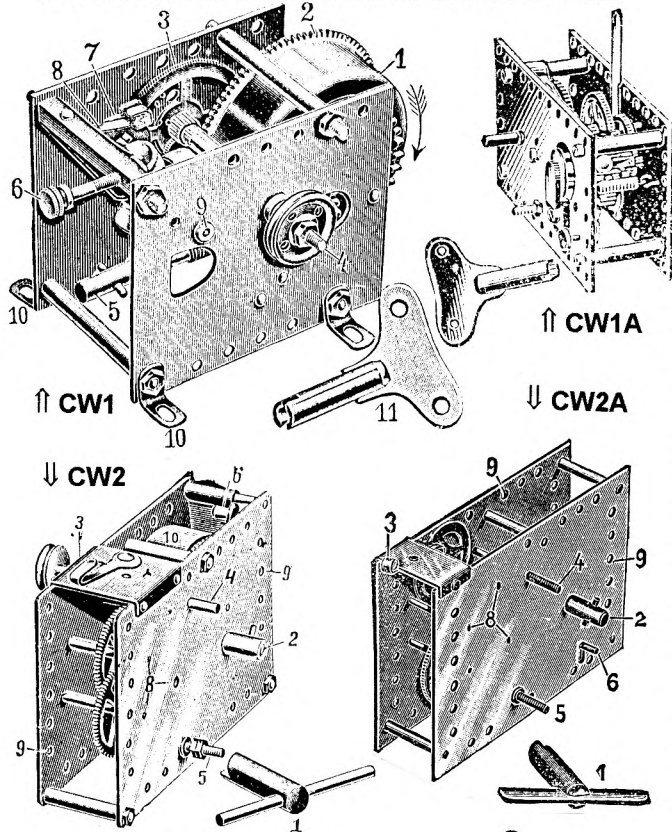
That leaves unseen the 7 x 7h Pierced Square Plate, the 1" Spindle (and the 3" if it was not always the 4" as found), the Spanner, the Large Wheels, the Single throw Hand Crank, and the 3 hole Double Angle.

And in my box of unidentified parts is a Flanged Plate that is virtually the same as 5*7h Chassis but is slightly, not more than 1mm, narrower. It has a dark grey dull metallic finish. [Would I be right to call that sherardised?] If this wasn't an earlier ONADO part, there's another mystery system waiting to be found.

SUMMARY OF MANUAL •Name: ONADO ENGINEERING MODELS •Details of maker: ONADO Industries Ltd., Faraday House, 8/10 Charing Cross Road, London, W.C.2. •No dates or Ref Nos. •Page size: 280*215mm deep. •No. of pages: 8 + covers. •Language: English. •Printing: good half-tone photos of models; cover as MCS with blue model bridge and red lettering. •Page No. of Parts List: 8 (no PNs). •No Set Contents. •Sets covered: 2,3,4. •No. of models for each set: 4,4,4. •Name, Page No. of first & last model of each set: 1: PORTER'S TRUCK,1; FIGHTER PLANE,2. 2: DELIVERY VAN,3. 3: TOWER BRIDGE,5. 4: ARMY TRUCK,6; NAVAL SLOOP,7. (No Model Nos.)

STABIL Motors This account follows on from the notes on STABIL in 13/348 and thanks are again due to Werner Sticht who sent most of the material. The first motors seem to have been introduced at some point between 1914 and 1919. The 1914 catalogue doesn't mention them and in 1919 three motors were listed, but without saying whether they were clockwork or electric. They were described as being iron type, brass type and nickel type - perhaps it was just the finish that was different but the nickel cost Mk.325 against Mk.130 for the iron version. At the time the largest No.55 set was Mk.890.

CLOCKWORK Motors The earliest known illustration of a motor was in a Danish manual, believed to be from 1921. For ease of reference I'll give the different motors codes, so this will be CW1. The winding shaft '5,' at the end, carried a pinion which engaged with a large contrate on the spring shaft. It was claimed to run for between 5 and 10 minutes, and the speed could be adjusted by the screw 6, which no doubt acted on the governor. The output shaft '4' was threaded. This motor also appeared in a 1924 Dutch manual and was referred to there as the iron version; a brass version was also illustrated (CW1A), which is obviously different and had a reversing lever on top. It's larger too with 6*11h side-plates, and it was said to run for 3-6 minutes. Possibly these were two of the motors in the German 1919 List.

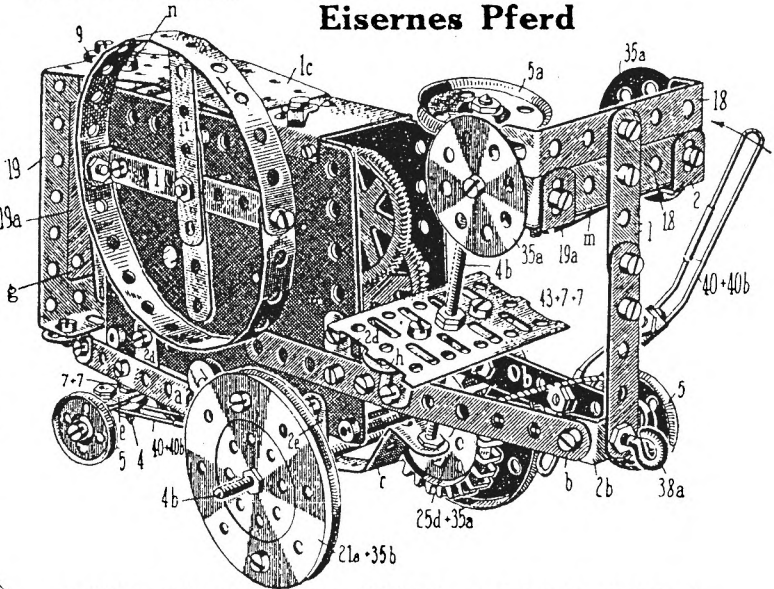


CW2 was the first version of the standard prewar motor and an ad for it is known from 1924. The running time was given as between 7 and 20 minutes depending on the setting of the regulating lever '3', which also served to start and stop the motor. A full wind needed 20-25 half-turns and the key was made so that the spring couldn't be wound the wrong way. The output

shafts '4' and '5' were threaded and '5' could be reversed with the lever '6'. Two versions were available, iron and brass, but it isn't known whether this indicated any mechanical differences. This motor was probably available before 1924 - it was shown in a DEN LILLE INGENIØR manual (see 7/157), which may have been as early as 1922.

Some changes were made later (CW2A) and the new motor was shown in a 1927 manual. The running time remained the same and the only noticeable differences were in the regulating lever, 3, and the different reversing lever '6'. The #50 outfit Iron Horse model below incorporating this motor, is from the '27 manual.

Eisernes Pferd



In 1930 a cheaper version (CW2B) was introduced: it had no reversing gear, and only one output shaft (I think), but its running time was the same. No illustration of it is available.

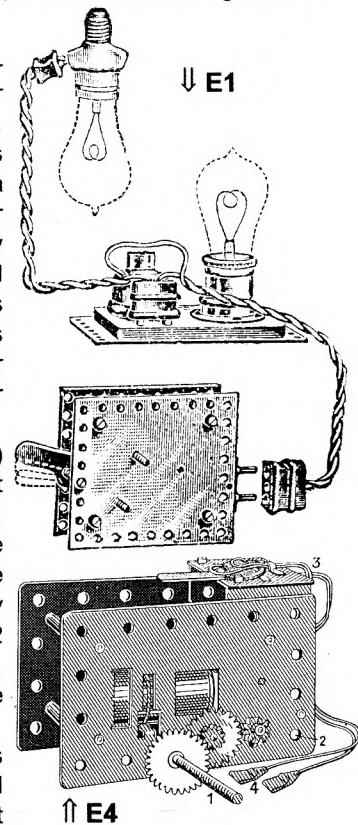
Details of the small but ingenious KNIRPS motor of the 1930s and beyond were given in 11/272.

A completely new motor, CW3, was introduced after WW2, probably in the 1950s. It is said that it was made in Switzerland, and was claimed to be suitable for almost all STABIL models. One lever changed the speed and the other gave reverse.

ELECTRIC Motors The earliest reference to an electric motor (E1) is in the 1924 Dutch manual. It was for use with the 250v mains and more details are given in a 1925 German manual. The lever gives forward/stop/reverse by mechanical action, and the speed of the two threaded output shafts depended on whether 1 or 2 bulbs were in circuit. One ran at 1100 or 560rpm, and the other at 270 or 200.

An entirely new motor (E2) was shown in a 1930 List, and it continued, seemingly unchanged, until at least 1940. Said to be powerful enough for even the largest models, it ran from a 20v transformer. At RM.22, it cost 2 marks more than the CW2A, though a transformer would have added another RM.12.

A different 20v motor (E3) was sold after WW2, smaller and simpler by the look of it, though it



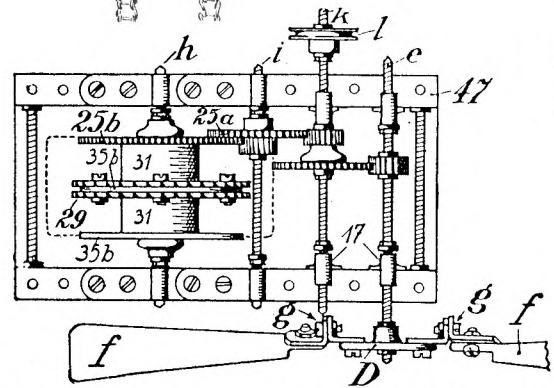
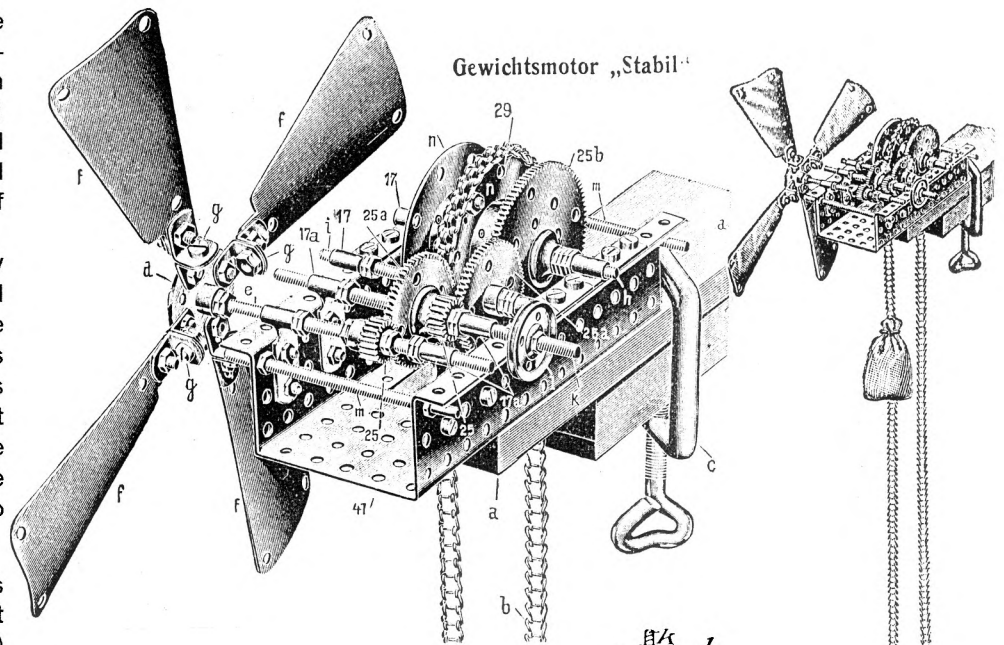
was still claimed to be suitable for the largest models. The earliest illustration to hand is from 1956; the illustration in a 1961 manual shows some detailed changes to the front panel (E3A). There was no mention of it in a 1966 manual.

1957 saw the first battery motor (E4) which on no load would run for 12 hours from one 4½v torch battery. Two speeds were available, 60 rpm as shown or 130 with the output shaft '1' inserted through the holes '2'. The start/stop/reverse switch '3' could be detached to allow remote control.

The WEIGHT MOTOR This was probably one of the first STABIL motors (above, right) and could be made entirely from standard parts. All the necessary ones were included in the largest set but were also available as a separate outfit. The manual explained the action - 'A heavy weight is hung on the top of the endless chain and the motor runs as it slowly descends. When the weight has reached the lowest point it should be removed and hung on the upper part again. With two weights you may achieve a non-stop drive.'

The weight suggested was a 1 kilo bag of sand and then the pitch of the governor fan blades was to be adjusted until the speed of the sprocket shaft was 10-12 rpm. Under load that was to reduce to 6-8rpm, giving a speed of say 100rpm at the output shaft. That would mean changing weights every ½ minute or so if the motor was on a table and the chain reached down to the floor.

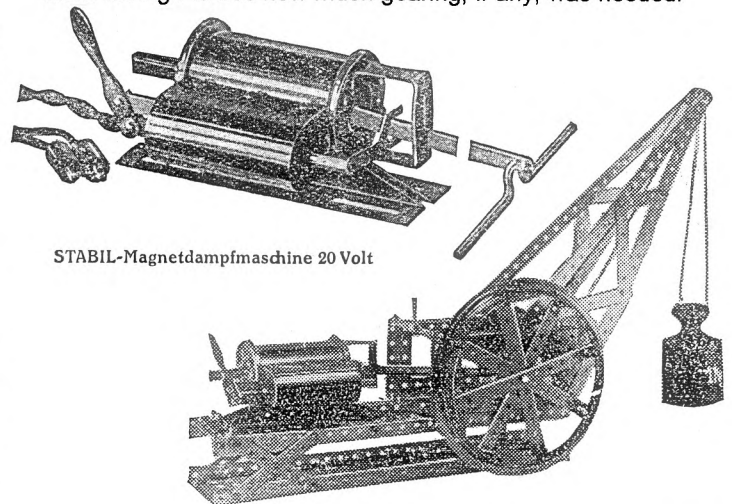
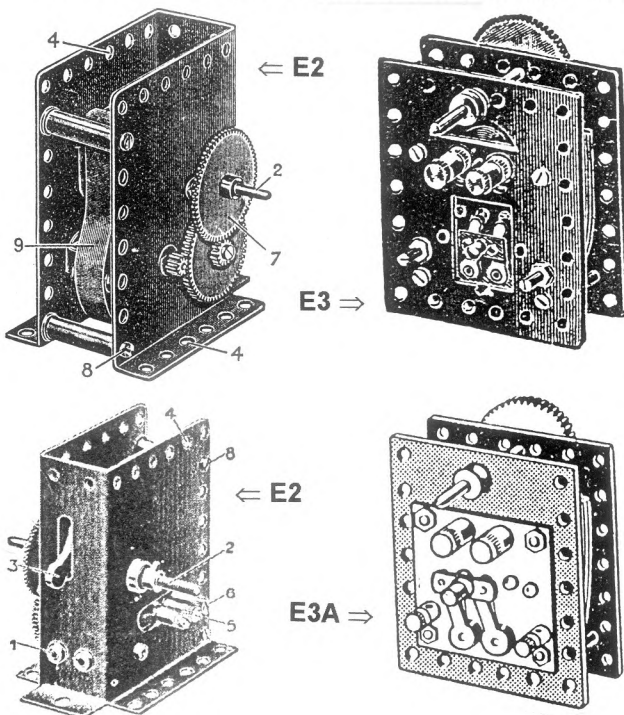
As mentioned in 13/353 the Flanged Plate, #47, was specially introduced for this motor, and at the same time the Bearings 17 & 17a. They were needed to reduce the friction from the Threaded Rods which were used as Axles. The double Sprocket was held by being clamped between the 2 Wooden Cylinders, with the rigid Cheek



Pieces on the outside. This assembly would have stiffened the sprocket shaft considerably and prevented it bending excessively under the 1kg weight.

The last known reference to the motor is in a 1925 German manual.

The MAGNETIC STEAM ENGINE This patented motor was advertised from 1932 to at least 1936. To quote from an ad: 'The MSE is a realistic model of a modern high pressure steam engine cylinder with slide valve control. But it is not driven by steam, but by electromagnetism. The only control is the lever on the valve chest which gives stop/forward/reverse and fast/slow. The motor can be used to drive all STABIL models and is easy to use and mount. It may be used vertically as well as horizontally, and it is perfect when built into a crane, etc. It requires 20v dc from a so-called railway transformer, or from dry cells or accumulators. The crane shown can lift a 1 kg weight without difficulty.' The illustration isn't clear enough to see how much gearing, if any, was needed.



More on MECHANIX This is about a No.1 Set that Don Blakeborough very kindly sent over from New Zealand recently. He also included samples of most of the parts that are only in the larger outfits, and some notes on the system. This piece follows on from what is in MCS and from the description of some of the parts in 4/69.

The No.1 box measures 13*9½*1" and the off-white lid is decorated with a random pattern of 5,7 & 11h green Strips, with a panel similar to that in the manual cover shown in MCS. The main differences are that the white circle is blank (without the 'Made in New Zealand' on it) and 'Educational' in green has been added over the name. The colours are the same - purple, black and white on an orange ground - but on the lid parts of the shadow of the purple lettering is green. On one edge of the lid is MECHANIX No.1. No details of the manufacturer are known but the words WHOLESALE DISTRIBUTOR/ MECHANIX P.O. BOX 1364/ AUCKLAND are printed in a small frame on the lid. Don wrote that the No.2 box measures 15⅞*9¾*1⅞".

Most of the parts slip into slits in a thin reddy-orange backing card, but the Axels [sic], Crank [Handle], N&B, and Rubber Clips are in a 6*4" brown envelope with MECANIX ACCESSORIES, and the numbers of the different parts for 'Set No.1', nicely printed on the front.

Now for the parts:

• **DATA** (in mm) **Strip:** •Hole pitch/dia, 12.7/4.2; •width, 12.3 to 13.3; •thickness, 1.0 to 1.5; •end radius 6.8. **Boss:** •o/d, 9.6; •i/d, 4.0 and 4.35; •zinc, cast integral with wheel, painted green; •single tapped. **Thread:** 5/32 BSW. **Axle Dia:** 3.96 and 4.03. **DP (Mod):** NA. **Nut:** square, 8.0 A/F; and **Bolt:** cheesehead, 6.1Ø. Both braced steel.


• There are 6 different widths among the 12 Strips (including DAS) in the Set; most are 1.35mm thick. Don mentioned that a previous owner had repainted them all, and that leaves the possibility that they aren't all MECHANIX parts - however all the holes are the same size, as are the end radii (so the wide Strips look nearly fully rounded and the narrow ones, 'semi-radiused').

• The part described as a 5½" x 2½" Plate is like the current MECCANO #52 except that the steel is slightly thicker at 1.3mm, and the flanges are a little deeper at about 14.2mm.

• All 4 Angle Brackets are 12.5mm wide and the arms are 13½ to 14mm long. The hole in one arm is 4.4mmØ, and the slot in the other is 6mm long.

• The Flanged Wheel in OSN 4 is called a Flat Wheel, and the Train Wheel is sometimes a 7/6" Wheel, Plain, and sometimes a 7/8" Wheel, Plain. It is 7/8"Ø, 1" over the flange. The 1" Pulley Wheel is the Wheel, with Screw, and there is also a 1½"Ø version of it, die cast like all the Wheels. It's similar to the 1" but doesn't have the name cast into its face, doesn't have the raised centre on the non-boss side, and its (narrow) groove looks to be only half as deep, with steep sides. The bore of 4 Plain Wheels is about 4.0mm; that of the two sizes of Wheel with Screw (1 sample of each) is larger at 4.35mm.

• The two 3" Rods are 3.96" dia; the two 3½" are 4.03mm and won't enter the Plain Wheels. The Crank is also 4.03 and is 4½" o/a with a 1" long handle. All have square ends, sheared but without much burr. The Rubber Clips are short lengths, about 4mm, of orange rubber tubing, with a wall thickness of about 1½mm.

• That leaves what is listed as #17, Screwdriver (below) - it's 2¾" o/a with a dull grey metallic appearance. A second Screwdriver, #16, is  included in the contents shown for Set 2, but for Set 3 this PN is used for the 1½" Wheel with Screw. Apart from this other Screwdriver, the only part not described here or in OSN 4, is a 2" Rod.

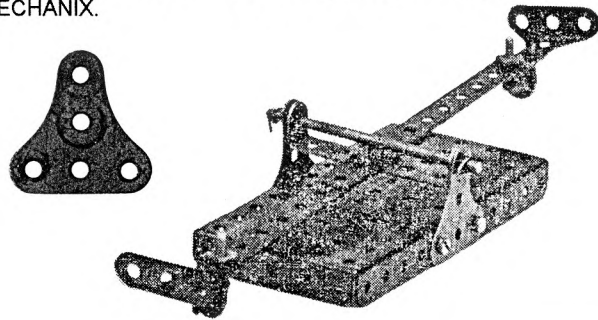
• All the Wheels are painted a lightish green; the Flanged Plate is a medium red; and the Rods, Crank, and Angle Brackets are a dull (chemically produced) black, which looks as if it is the original finish. The other parts have been repainted in a similar shade to the greenish bluey-grey colour (to my eyes) of a Flat Trunnion that Don sent, which hadn't been repainted.

However variations in finish may be found. Richard Symonds sent a photo showing a Plate the same colour as the Strips, and a bright metallic finish on the black parts above. Also the Crank looked about an inch longer.

• Apart from the different widths of Strips, the parts seem accurately made with just a trace of burr on a few edges, and the line of holes in a couple of Strips not quite central.

The Manual is a sheet 285*441mm folded into four, with the cover in MCS on the front and the slogan *FOR YOUNG ENGINEERS* on the back. Inside, one page is given to each of the 3 sets, with a 'Parts List' (set contents) and photos of 3 models for each outfit. A rubber stamp has been used to change the contents of Set 2 in some copies, from 2 to 4 of 7/8" Wheels, Plain; and from 4 to 2 of Wheels, with Screw. This makes the sets progressive apart from that Screwdriver, but one inconsistency that Don noticed is that 12 Rubber Clips are called up on the envelope in the No.1 Set, but only 10 in the contents in the Manual.

The models are all fairly simple but not bad considering that the largest set contained only 24 N&B. One surprise is that although there are 4 Wheels even in the smallest set, there are no 4-wheel vehicles shown, apart from a Crane. The photos in the manual won't reproduce well but you may be able to see those elegantly shaped Trunnions in the Scales below, from the No.2 outfit. But just in case I'll put a copy of one alongside. They, together with the die cast Wheels, are the best guide in identifying parts as MECHANIX.



SMALL ADS

• **CONSTRUCTO sets for sale.** All complete and parts as new and unused. Normal sets C01, C02, C03/6, C04, C06 (plastic plates); and theme sets C07 Lorries, C10 Jeeps, C12 Tractors, C13 Tractors with Scoops, C20 Helicopters, C21 Space Shuttles. Large manuals are included in the C01-04 sets and leaflets in the theme sets. Also Packs of Parts as available. Prices depend on source, eg, C01 from UK £10, C04 from Holland £25. Prices include postage except overseas. Please send SAE for prices, full details and parts lists. All letters answered. Brian Rowe, 23 Courtenay Park, Newton Abbot, Devon, TQ12 2HB. Tel: 01626 52188.

• **Wanted. Photos** (against payment) of models made from LEGO and all metal systems except MECCANO. Please write to Jeannot Buteux, 67 Bd de Dijon, 10800 Saint-Julien les Villas, France.

• **Exchange. Colour copies** of manual covers, and possibly the rest of manuals if of interest. Please write to: Constructorama, 23 rue Thénard, 10800 Saint-Julien les Villas, France.

• **I will purchase all parts** that aren't MECCANO or ERECTOR. Any condition. Please list in first letter, with price. Richard Symonds, 15170 Dove Place, Surrey, B.C. V3R 4T5, Canada.

• **Wanted. U.S. Meccano Magazines**, catalogues like *Magic Carpet*, and other similar U.S. publications. Kendrick Bisset, 910N. Webster Street, Naperville, IL 60563, U.S.A.

• **French Trix construction sets** and literature urgently wanted. I would appreciate any help in obtaining pre or post-war sets. Although I am basically a collector I am in the process of writing about the Trix Construction system (plus the Trix tinplate boats), and my findings will be published in due course. Please contact Tony Matthewman, 12 Ballagarey Road, Glen Vine, Isle-of-Man, British Isles. Tel: 01624 851 693 or Fax: 01624 852 329.

• Ansgar Henze has a few **English STABIL 49-52 manuals for sale.** Price DM50 each including postage. Contact through Werner Sticht, Henneberger Weg 10, D-97762 Hammelburg, Germany.

MECHANIX from India Soon after I'd typed up the notes on the facing page, Ashok Banerjee wrote that he was sending over a MECHANIX set. I was expecting another NZ outfit but when it arrived it was a new system of the same name which went on sale recently in India. My first impression on opening the box was that the parts bore a striking resemblance to BRAL and the contents are also BRAL-like, with for example 11h Flat Girders and 5*5h Perforated Plates in what is quite a small set.

The box looks very smart. It's quite large (20*12¾*1½") with the parts in recesses in a thin, light grey plastic formed tray, and a transparent inner cover to keep them in place. There's a separate space for practically every of part of any size. The N&B and small parts are in neat little red boxes, and there's a similar long thin box for the Axles - just the same size as the one in my mid-1980s BRAL No.3 set. The box lid is red but most of it is given over to large colour photos of 8 models. There's no indication on the box or in the manual that there are any other outfits in the system. The set is made by Zephyr, 195, A. R. St., Bombay-400 003 and is marketed by Rup Ratna, Raunak Compd., L.B.S. Marg, Ghatkopar (West), Bombay-400 086.

Now for the parts. Unless otherwise stated they are identical to those in my BRAL outfit, so all the elongated holes have large radii ends and the Trunnions have flat tops. All Strips, Brackets, and Trunnions are nickel plated.

• **DATA** (in mm) **STRIP** (11-hole): •hole pitch/dia, 12.7/4.3; •width, 12.2; thickness, .78; •ends fully radiused. **BOSS**: •o/d, see below; •i/d, 4.3; •integral plastic; •single tapped. **THREAD**: 5/32" BSW. **AXLE DIA**: 3.93. **DP (Mod)**: N/A. **NUT**: hex 8.0 A/F; **BOLT**: roundhead 5.9Ø; both iridescent steel.

• The set boasts 26 Strips in all (with 11,7,5,4 & 3 holes, and like BRAL their width is .3mm less than ½"); 4 each of Curved Strips (MECCANO 90a type); 1*3*1 and 1*5*1h DAS, plus a Double Bent Strip.

• There's a selection of Flat, Angle, Reversed Angle, and Double Brackets (including one 2*1*2h); and 2 Flat and 2 ordinary Trunnions.

• Rigid plates consist of a red 5*11h Flanged Plate, a yellow Flanged Sector Plate (8h long), and 2 light blue 5*5h Perforated Plates. The latter have fully radiused corners - I haven't seen the BRAL equivalents. Also in this category 2 dark green 11h Flat Girders.

• The Flexible Plates are all very thin (about 10 thou) plastic: 7 off 3*5h (6 green and 1 transparent), 4 red 5*5h, and 1 blue 5*7h.

• The 2 Bush Wheels are red plastic with a slightly soapy feel and a completely flat outer face. The Pulleys are made of that very light plastic with a shiny metal-like appearance. Loose Pulleys are 2x15mmØ and 3x25mm; with boss, 6x25mm and 1x53mm. The bosses of all the bossed parts are moulded with the disc and are extended outwards on one side to take the Set Screw. The basic diameter of the boss varies from 7.8mm for the 25mm to 10.0 for the Bush Wheel, and the extension adds about 3mm to that.

• The Axles are good quality, nickel plated with slightly rounded ends. They are fairly loose in the Pulleys but the bore of the Bush Wheels is only 4.0mm giving a snug fit. The set contains 2 each of length 40, 92 & 112mm, plus a Crank Handle 145mm o/a with a 32mm handle.

• There are about 50 N&B. The Bolts have neat heads: 4 have 10mm of thread, the rest 6mm. The Nuts are the pressed sort. The 8 Spring Clips are the tiny BRAL type, 4mm wide with wings 3mm long.

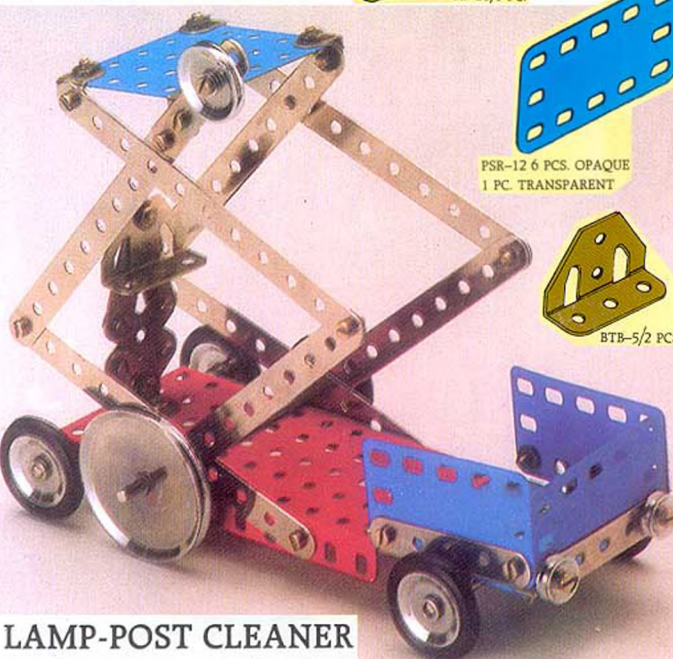
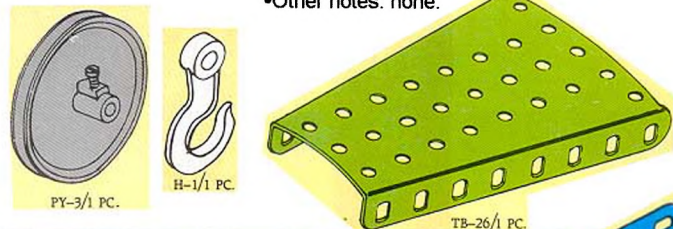
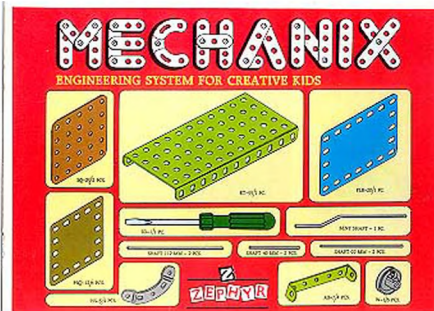
• 6 black plastic Rings are fitted to the 25mm Pulleys - fat ones 6mm thick, again like BRAL. There's also a grey 4mmØ circular section Driving Band, about 13" long, which isn't used in any of the models. No Hook was found in the set but there should be the one shown below. It's coloured grey in the models and it looks quite large, with an eye that might take an Axle.

• The Spanner is like the BRAL one except that its neck parts are 7mm wide instead of 6mm, and the joggle halfway along one of them is 1½ rather than 2mm. The jaws of both are about 7½mm and don't fit the MECHANIX Nuts. The Screwdriver is some 155mm long overall and has ALFA 153 moulded into its green plastic handle.

I make that 124 parts plus N&B, which ties up quite well with the claim of '176 pieces including 54 sets of nuts & bolts' on the box. The parts are accurately made and their finish is good if not quite first class. There are one or two speckles of rust on the nickel but the paintwork is as good as new. It's a far cry from MAXHINA and PLANO (10/258, 11/287), though it's a pity about the Spanner not fitting the Nuts. And there's a nice diagram showing lock nuts but only one Spanner in the Set. The slogan on the box and manual is 'Engineering System for Creative Kids'.

The 16 page manual is all in colour with quite large photos of 13 models, and additional views of some of them showing intermediate stages of construction. The model below is typical and generally the models hardly do justice to the set. I couldn't find any of the models in the couple of BRAL manuals I have. All the text, that is the names of the models and a few lines of chat, are in English. The colours in the photos correspond to those of the actual parts except that the smaller Flexible Plates are shown blue and yellow. All the parts are illustrated on the manual's covers and the colours there are generally quite different with for example light blue Strips, red Brackets, and light green Flanged Plates.

SUMMARY OF MANUAL •Name: MECHANIX •Details of maker: Zephyr •Dates &/or Ref Nos: none •Page size: 240*172mm deep •No. of pages: 14 + outer covers •Language: English •Printing: all colour •No Parts List: •Page Nos. of Set Contents/illustrated Parts & highest PN: front & back covers,W •Set covered: one, no number •No. of models: 13 •Name, Page No. of first & last model: CHAIR,1; HORSE WAGON,14 [no Model Nos.] •Other notes: none.



Some SMALL ERECTOR SETS In 1913 and 1914 the smallest outfits were the No.0, but for 1915 ERECTOR TOY BUILDER sets were introduced instead, in at least two sizes. They in turn were replaced in 1916 by Sets 0, 00 and 000 and these continued until at least 1932. After 1914 these sets were not shown in most Erector catalogues and as will appear, they weren't simply smaller versions of the 'regular' sets, but differed in composition and in the type of parts included. All the above comes from *Greenberg* which stops at 1932, but there were certainly 'unconnected' small sets after that. A UK Ad Leaflet from shortly after 1932 shows a No.0, and much more recently, but still with the pre-1963 style parts, there was a No.100 outfit. Two remarks before going on: a TOY BUILDER set was shown in the 1913 Sears catalogue; and at least in 1924, the 00 set was larger than the #0.

The earliest set for which any details are available is the 1915 **Toy Builder** set shown in *Greenberg*. It contains 50 parts comprising 2x9-hole and 12x5h Strips, 4x7/8" dia Discs, a 5*4h fully Perforated Plate with flanges on the longer sides, Angle Brackets, and N&B. All are standard ERECTOR parts of the period but the Flanged Plate and 9h Strip weren't in the larger sets until 1916, and so may have been introduced for Toy Builder. The Strips are found fairly frequently here, though they may be mainly from later sets: they are very similar to MECCANO but are noticeably thinner. The Angle Brackets are the 1/2" wide P1 type.

The copy I have of the Model Leaflet for this Set is a single sheet folded in two, and there is no mention of Toy Builder or any other set on it. In several ways it is inconsistent with what appears on the box. The first thing is that on the lid is 'Made by the Mysto M'fg Co.', but the name on the Leaflet is The 'A.C.Gilbert Co.' That change of name occurred in 1916. Also on the box it is claimed that 61 models can be made with the 50 parts in the set, but 102 models are shown in the Leaflet. 61 of these on one page have P35 Strips with triangular cutouts (see 3/47) instead of the 5h ones, and standard 6" P32 wide Girders instead of the 9h Strips. None of the models include the Flanged Plate but one has the much larger P19 flat Base Plate; and a couple show the wide P2 Angle Brackets.

The 41 models on the opposite page could all be made with the 50 parts in the Set. One model of each type is shown opposite.

The 10 models on the box lid are all from the 61 models on the first page but every part in them has a direct substitute within the actual parts in the set.

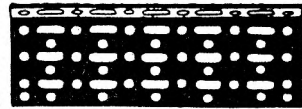
Going back to the 1913 ad, not much can be seen but all 3 models shown are among the '61' in the 1915 Leaflet, although the Strips in them seem to be the type with 5 round holes - 12 are needed for one model. Discs can also be seen but no plate of any sort.

The next items are two Model Leaflets with Copyright 1920 on them. One from Kendrick Bisset also has M 466 at the bottom and is headed, in small letters, **No.0** Erector - some details of it were given in 10/259. Photos of 9 models are shown and from them the main parts in the set are 2 each of 3" and 6" wide Girders; 2x9h and 5x5h Strips; 4x1 1/8" Pulleys; 4 Axles, 2 of which look to be 3" long, and 2 about 4 1/2"; a Crank Handle; 4 each of narrow and wide Angle Brackets; and a 5*4h Plate (see 3/47). All except the Plate and the 3" Axle, if that length is correct, were standard parts at the time. The 1920 No.1 outfit didn't contain many more parts but they were all the wide variety with no 1/2" wide Strips or Brackets.

Both sides of the **second 1920 Leaflet** were shown in 3/46. It has a code, M 785, but there's no reference to any set. The main parts needed for the models are 2x9h and 6x5h Strips; 4 Discs; 4 narrow Angle Brackets; and a 5*4h Plate. So it's rather like a smaller Toy Builder except for the Flat rather than Flanged Plate, and many of the models are similar or identical.

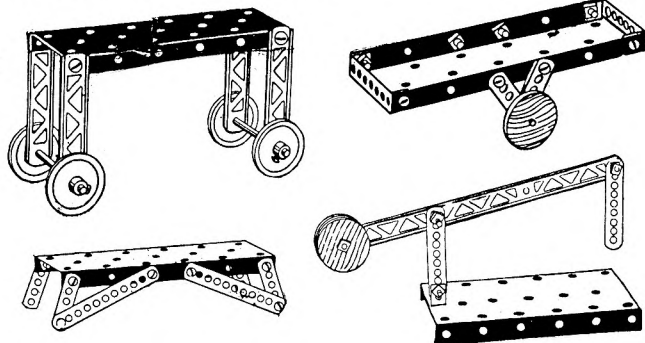
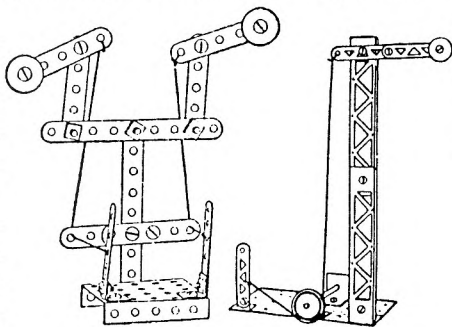
The **Leaflet (M 973)** from Brian Johnson shows models made with 1, 2 and 3 'Erector Sets', and from the parts needed for the various models, the content of the Set is the same as that in M 785 above, except that there are only 2 Discs instead of 4, and possibly an extra Angle Bracket. Most of the models that can be made from one Set are the same as in the earlier Leaflet.

The contents of a **1924 No.0** set is given in *The A.C.Gilbert Heritage Society Newsletter*, Vol.3, No.2., and all the parts are the new style that appeared in that year. The main ones are 4x2 1/2" and 2x5" Girders (now about 5/8" wide); 4x5h and 2x11h Strips (now 1 3/32" wide with holes at 1/4" pitch); 4x1 1/8" dia Pulleys; 2x4" Axles; 4 Angle Brackets; a DAS, probably 3" long; and 2 of the new Base Plates, Q, 5 1/2" long with one flange (opposite). This Set is a simplified version of the 1924 No.1 Outfit

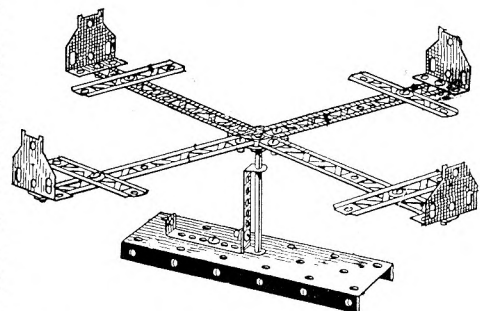


Q—Regular Base Plate

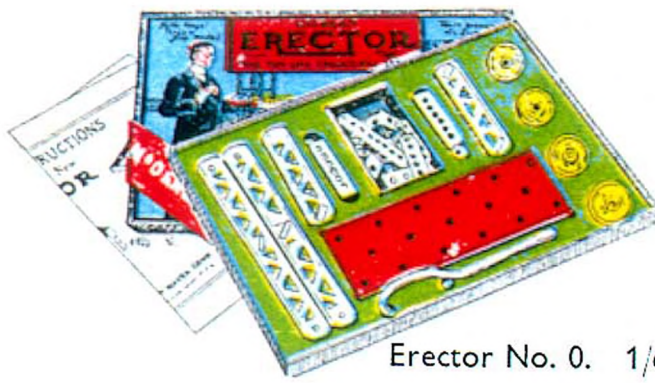
Next a UK 4 side Model Leaflet, Form M1249-A, © 1929 for the **No.0** outfit. From the models it is likely that the contents of the set were similar to those in 1924, but with some significant differences: • The two Base Plates were replaced by a different Flanged Plate, #FO, which had been listed since 1928. It is 5 1/2" long by 1 13/16" wide and the flanges are 3/8" deep; it is made of thin (.015") steel, painted a light red; and the pitch of the holes is 1" lengthways with the outer rows 1 1/4" apart. As far as I know this part was never included in larger outfits, excepting perhaps the very largest. In some of the models the holes across the top appear to be in line but they are actually staggered as in the model below, left. • Instead of the 2x11h Strips, 4x9h are used in the models. No 9h Strip is listed as a standard part so this length may have only been included in the small sets. • 2 1*7*1 DAS are shown and again these may never have been a standard part. • The model below left shows the normal 1 1/8"Ø Pulleys but the wheels of all the other models seem to be push-on Wooden Discs of about the same size.



The model opposite is one of 6 shown on the back page that could be built with the larger **No.00** Set The main additional parts seem to be 2x5" Girders, 4 Trunnions, and a Bush Wheel. No 9-hole Strips can be seen, but 11h ones appear in two models. The DAS seem to be the same width, but with only 6 holes along the base, with perhaps extra space outside the outer ones.



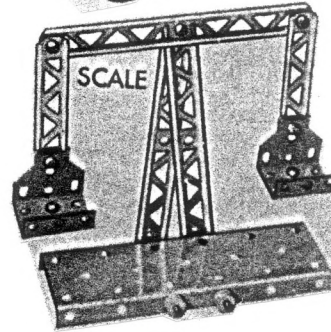
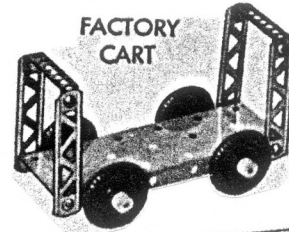
Moving on to the **1930s**, there's no date on a UK Leaflet from that period but it shows some sets with Base Plates P and Q (P is similar to Q but 3" long), and some with the double flanged Plates, MC and MD, which were introduced in 1933. So it's probably from 1933 or 1934. As can be seen in the illustration of the **No.0 Set** at the top of the next column, it still has the Plate #FO, 5" and 2 1/2" Girders, and the '6-hole' DAS. The 4 Pulleys look like the smaller ones of about 1" dia, which weren't listed or included in the regular sets until 1938.



Erector No. 0. 1/6

Some details and the contents of the **No.100** Set, possibly from the **1950s**, were given in 11/298. Basically it is quite similar to the 1930s outfit with the same Girders, FO Plate, and DAS. But instead of the Strips and Brackets are 4 red Trunnions; and plastic Wheels instead of metal Pulleys. Not mentioned in OSN 11 is that the Axles are much smaller in diameter than normal. Also the Wheels have ERECTOR moulded in twice around the centre raised area on one side, and '14' and 'P12A968' on the other. Two of the models are shown opposite.

Finally thanks to all already mentioned for sending material, to David Hobson and Don Redmond for their contributions, and to Richard Symonds who passed on the copy of the Toy Builder leaflet which I think came from Bill Bean.



Also, whenever I start to delve into ERECTOR I very quickly need to augment my meagre knowledge of it by referring to Al Sternagle's excellent *ERECTOR PARTS ILLUSTRATED*, which I don't think I've ever mentioned before. All known parts are listed, with the date they were introduced, and there are illustrations of nearly all of them. I find it invaluable and its 70+ pages don't cost the earth. Details from Al at RD#2, Box 400, Hollidayville, PA 16648, U.S.A.

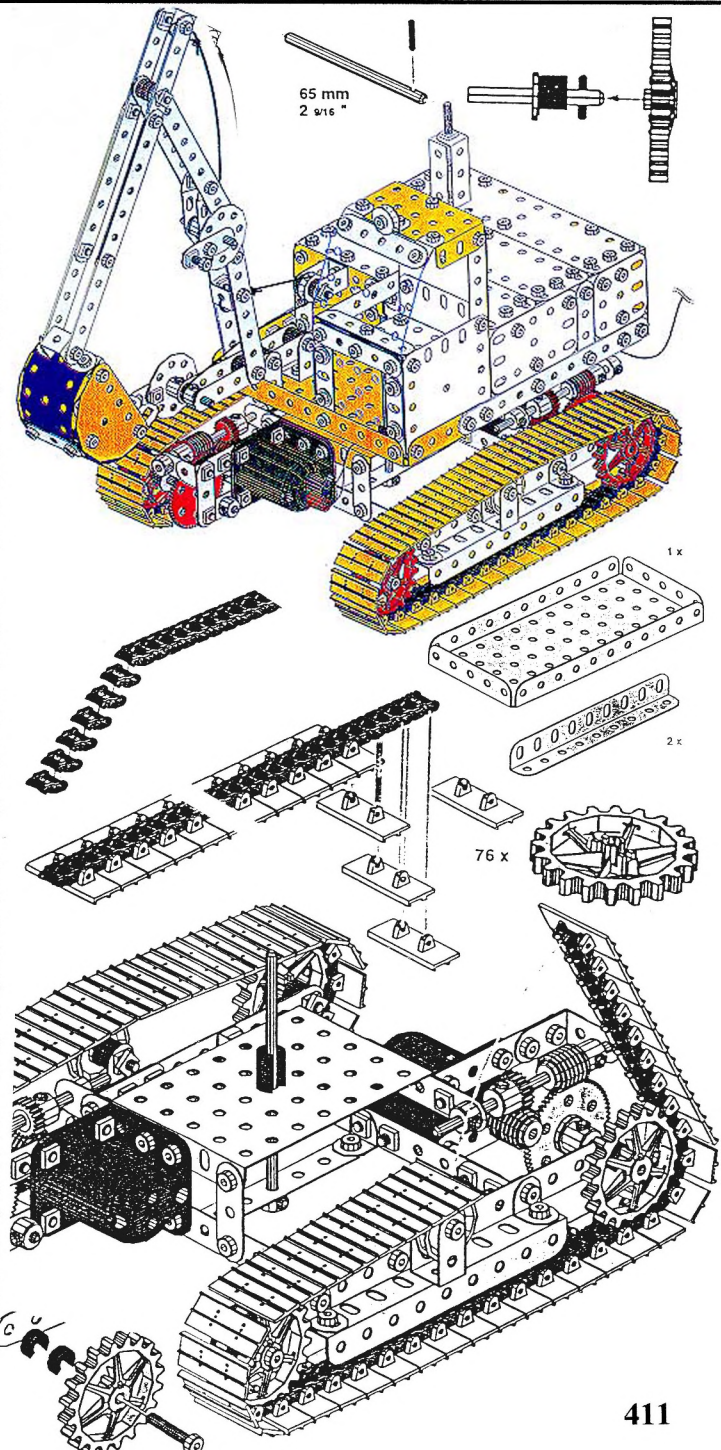
The METALLICO No.10 Outfit Since the write-up in 13/336 I have been able to examine, courtesy of Josep Bernal, a manual for the No.10 set. It's the same size and format as the manuals described in OSN 13, and the presentation of the models is similar. Only 2 models are shown, both tracked of course, the Digger and Crane which can be seen on the box lid in OSN 13. The No.10 set is rather larger than the No.4 but it isn't entirely progressive and its contents are probably dictated by what is needed for the featured models.

A few parts in the #4 aren't in the #10; most of the new ones concern the tracks but there are as well 2x9h A/Gs, a 100mm Axle, 2x65mm Axles with a small cross bore at one end, 2 small Driving Pins, perhaps roll pins or the like, to go through said Axles, and a 5*11h Flanged Plate with 4 flanges. Overall the #10 has 215 main parts against 187 in the #4, plus 470 N/B/W against 291.

The track is made up of Links which clip together to form a chain, with a Track Shoe clipped to alternate Links. This arrangement probably gives better running geometry than the MECCANO method. Each track runs around a toothed, 6-spoke Track Wheel at each end, and over a 1" Pulley in the middle of the top run. The drive is to the front Wheel on one side and to the rear Wheel on the other. In the manual the Links are shown black, the Shoes yellow, and the Track Wheels red.

The 2 motors are controlled by separate switches on the Battery Box and each drives one Track Wheel through a double Worm reduction. In the first stage a Worm on the motor shaft engages a 1/2" Pinion; in the second the Worm on the Pinion shaft meshes with a 1 1/2" Gear on the Track Wheel Axle. The Track Wheels are probably a push fit on the Axles and a positive drive is ensured by a recess in the shallow boss of the Wheel engaging the Driving Pin which goes through the end of the 65mm Axle.

Otherwise the models are mechanically simple with hand operated movements. The Crane's jib rotates but doesn't luff, and the hoisting rope goes to a drum which has no form of ratchet or brake. The luffing of the jib of the Digger is again by cord onto a simple drum, and the bucket arm rotates in a similar way, this time with the drum and its crank handle located half way up the jib. The bucket is fixed at the end of its arm.



Some GERMAN SYSTEMS Below notes on various systems that are not in MCS, and extra points about some that are. Many of them are small sets that appeared in the decade following WW2 and were only produced for a few years. My thanks to Jeannot Buteux who sent much of the information, some of it from the *CONSTRUCTORAMA* archive. Many other details have been taken from *EISENZEIT* (EZ), the invaluable book reviewed in 14/377, and from data that Werner Sticht kindly sent. However, as will be seen, there are still many gaps and any additional information will be very welcome. Also with my limited German I may have misunderstood EZ in places, and so, as always, corrections will be much appreciated.

AKRON This set dates from the WW2 to the early 1950s period and there's a small photo of the lid, and some notes on it, in EZ. Under the name is Stahl-Leichtbau-Kasten (Steel Lightweight Building Set) and what I can understand of the note says that thin elastic steel Strips were used with holes in them at 5mm pitch. And there's mention of spiral springs, possibly used as the method of fixing?

ALPHA MCS has 2 systems of this name and from the start date of 1931 given, the notes in EZ refer to the second one in MCS, the one with the 12mm spacing. The end date is given as c1970 though unless this encompasses both there may have been 2 ALPHAs on sale at the same time. There were 4 main and 5 linking sets, plus a small 50-Pfennig outfit, and it was the first system to have parts made of coloured plastic. The models included such non-technical subjects as a Weightlifter, an Ixex and Dancing Hares.

AUKI The box lid of this early 1950s set is shown in EZ but without any details, and the model on it is too small to see.

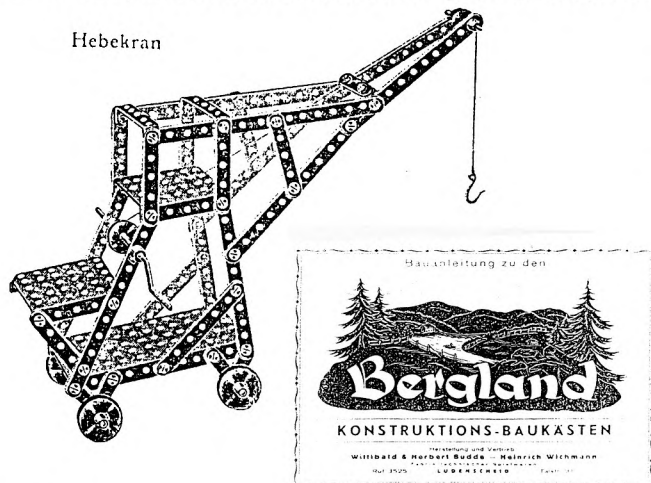
AUTO-CONSTRUKTOR This system is mentioned in EZ but no details are given. It may be the same as AUTO-CONSTRUCTEUR in MCS - that name came from a manual in Dutch, but the titles in the figures in it were still in German. EZ gives the start of production as 1928 and the maker as Curt Schrader of Eisenach, and from 1929 München. This firm had earlier made METALLO-TRIGON although it was called Stanzwerke GmbH at that time.

BAUFIX EZ gives the start date as 1932, and the maker as Saalheimer & Strauss, Nürnberg. It also refers to 'BAUFIX and **SIMPLEX**' as two cheap sets from that firm, but I'm not certain whether they were identical systems.

BENCO The start date isn't given in MCS - a set from around the early 1950s is shown in EZ.

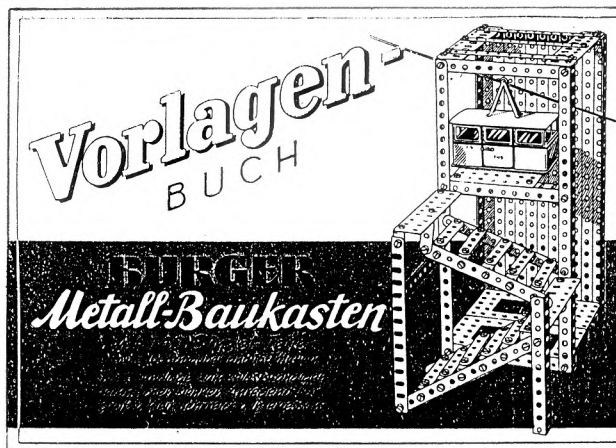
BERGLAND Made by Willibald & Herbert Budde/Heinrich Wichmann, in Lüdenscheid from c1945 to about 1950. The

Hebekran



manual cover with its mountain scene is shown at the foot of the last column; an inner page has two Nr.1 models that can also be made from Sets 0 + 0a. About 18 parts can be seen in the Crane, including Strips from 2 to 15 holes, a 5*11h Plate flanged along its longer sides, and a smaller one, probably 5*5h but sometimes it appears to be 6h long.

BURGER Probably from the 1950s, only one set is mentioned on the manual cover (below), and the text on it says that it contains 140 parts plus 100 Bolts and 150 Nuts. That might suggest that Threaded Rods were used as axles. Other parts that can be seen in the Cable Car Station on the cover are 5*11 Flanged Plates with the STABIL-style centre 7*3h cutout; 25,14 & 11h Strips and A/Gs; and 9 & 11h Flat Girders.



CONSTRUCTION EZ gives the start date as around 1965 and the original manufacturer as VEB (K) Metallwaren Schmerbach bei Gotha. From sometime between 1979 and 1982 production passed to VEB Ppaffschwende, and the original sets numbered from 100 upwards were replaced by the series starting with C01. KONSTRUKTION, the forerunner of CONSTRUCTION (see 8/181), isn't mentioned in EZ but the manufacturer given in MCS was from Gotha (a town near Erfurt).

Of the earliest parts EZ says that the Flanged Plates were sometimes painted, and the large plastic Circular Plates (Lochscheibe) was bright blue. This might have been the 50mm Ø Scheibe shown in MCS for CONSTRUCTION but it may be noted that for KONSTRUKTION a 70mm Lochscheibe is listed as well as a 50mm version. Both look as if they are metal, but the MCS entry may well not show the earliest parts.

DER KLEINE INGENIEUR EZ has 2 references to a system of this name and I'm not sure if they are one and the same. There's a photo of a small box lid from the WW2-early '50s period, with a model of a Ferris Wheel on it, and elsewhere talk of a DDR set with STABIL-like steel parts.

DER JUNGE KONSTRUKTEUR There is quite a bit about this DDR system in EZ. It was made by Hans Wunsch of Niederwiesa and appeared in 1959. The hole spacing was 12.5mm and the parts were black, of good quality, with plastic gears. As well as the outfits in MCS there was a theme set to make a Tractor, 3-Furrow Plough, Roller, and Harrow; and a Nr.1000 outfit with about 1000 parts. Later on (after 1966?) there were sets to make bridges and cranes; railway locos and wagons; and cars and other motor vehicles. No reference to the system is known after 1972.

DER KONSTRUKTEUR FMF A small set from the WW2-early '50s period. The box lid shown in EZ has 3 boys and a girl admiring a very simple model of an open-topped

double-decker bus - it's made of short Strips and 3h Ø Wheel Discs, the latter probably nutted to Screwed Rods as axles.

DITMAR This system from the late 1940s has small parts with 3.7mm holes at 8.5mm pitch. The Manual has only the name and Metallbaukasten on its cover; inside the text is in English, French and Spanish as well as German. The model below includes Strips from 3 to 15 holes; A/Gs 19, 23 & 35 holes long; a 3*1*3 Double Bracket; a 7*11h Perforated Plate, and a Pulley of about 50mm Ø with 6 holes in its face near the centre. The Plate and A/Gs have square corners. Again Threaded Rods seem to be used as axles although the Pulley is shown with a tapped boss. A larger model is featured on the box lid in Pl.60 of EZ and some red Circular Plates or Pulleys of perhaps 70mm Ø can be seen. The other parts shown are black but some were in fact plain aluminium.

Ditmar

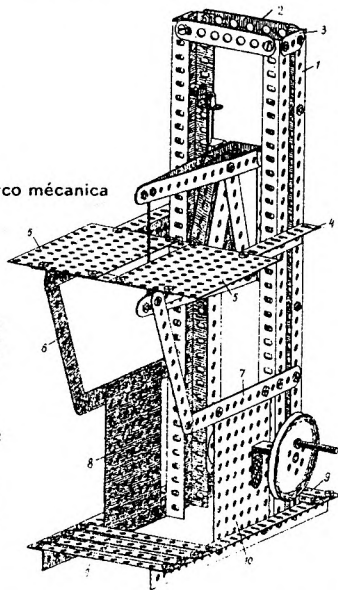
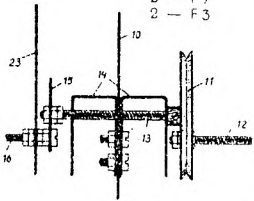
Nr. 44

Automatic bow saw

Scie en archet mécanique Sierra de arco mecánica
Mechanische Bogensäge

Construction parts:
Parts de construction:
Partes de construcción:
Bauteile:

- | | |
|---------|-----------|
| 7 - F15 | 4 - W35 |
| 8 - F11 | 2 - W23 |
| 6 - F9 | 2 - W19 |
| 2 - F7 | 8 - W1 |
| 2 - F3 | 2 - U5 |
| | 2 - U3 |
| | 4 - Pl |
| | 1 - Sch 2 |
| | 1 - G6 |
| | 3 - G3 |
| | 2 - A13 |
| | 8 - St |
| | 1 - SR 2 |
| | 58 - S1 |
| | 2 - S2 |
| | 28 - M |
| | 5 - M5 |



DÖCO EZ says that this system was made by Döhle & Co., Berlin-Stralau around 1920, but no details are given.

DORANDO An architectural set from 1926 made by Mosbacher & Schönfeld of Frankfurt am Main. A photo in EZ shows black metal strips and channels bolted together to form a framework, with stone blocks as infill. They are mostly fawn with some blue uprights, and the window blocks are black with white frames and green shutters. A red tiled hipped roof sits on top - it's made from thin material and though it looks to be in one piece, some joints would have been needed if it fitted into the box shown.

DUX AERO EZ says that this system came on the market in 1932, the probable date of the manual in 11/287.

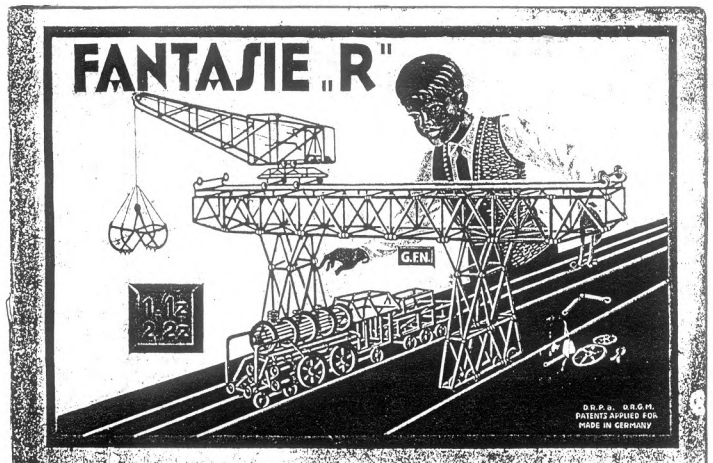
DUX-UNIVERSAL This rather unusual system is well covered in MCS and I hope to write some notes on it in a future issue. EZ mentions a February 1939 Patent No. 705732 but I'm not sure whether it was actually made before WW2. Production ceased around 1958.

EIFFEL EZ gives specific dates (see 10/247), with production between 1940 and 1948.

ELECTRIC There's an MCS entry for this system and a few further details were given in 8/183. The only mention in EZ is the dates (c1932-c1970), and the various makers after the one in MCS, as follows: from c1940, Böhmer & Helm, Meißen; in the DDR, Mewa Mesco-Werk VEB Meißen Sa.

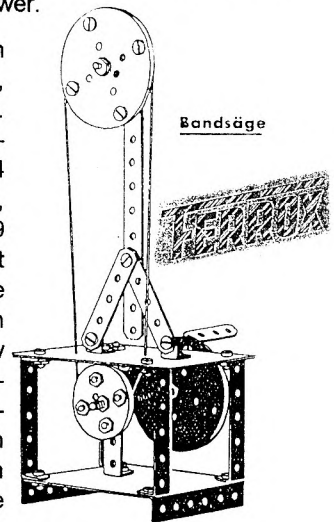
FANTASIE "R" This simple system was made by Gebr.

Fleischmann of Nürnberg, and was introduced in 1932. It was also sold under the name **ROBA**. It cost 50 Pfennig a pack and consisted of Tubes connected by (rubber?) Couplings. As can be seen, the Manual cover below boasts a quite large Crane and Loco, and has 1,1z,2 & 2z on it, presumably set numbers. EZ says there were only 29 different parts but that the Manual contained 168 models on the theme of the technical world.



F.D.K.K. Another small? system from the WW2-early '50s period. Two widths of Strips were used, 9mm and 12mm. Holes were 5mm Ø and the spacing 11.9mm. The parts were of steel with a black finish. A small photo of a box lid in EZ shows the top of a large Tower.

FERROX Another small system from the late 40s to early 50s, with 4.1mm holes at 12mm pitch. There were about 20 parts including Strips of 2,3,5,7,11 & 14 holes; 1*3*1 & 1*5*1 DAS; 1*1, 1*3, & 2*1*2 Brackets; 17,36 & 69 mm Discs; and 2 Plates, one flat and one flanged. The flanges are always shown with 6 holes in them, but otherwise only a few holes are indicated, and their position varies in the different models. Note the 'extra' hole that can be seen near the centre of both the large and small Discs in the Bandsaw opposite; also the ends of the Strips, Brackets, etc with angled corners, like **VOGUE**. Again Threaded Rods were used as axles. Some parts were aluminium and the others were red, green, or black.



- Bandsäge**
- | | |
|------------------------------|---------|
| 1 Grundplatte, gerade | |
| 1 Grundplatte, gebogen | |
| 1 Traverse | 11 Loch |
| 2 Traversen | 5 Loch |
| 1 Traverse | 3 Loch |
| 4 Winkeltraversen | 1x5x1 |
| 2 Winkel | 1x3 |
| 3 Winkel | 1x1 |
| 2 Lagergabeln | 2x1x2 |
| 3 Scheiben | 60 mm |
| 3 Scheiben | 36 mm |
| 1 Welle 80 mm, 1 Welle 40 mm | |
| 26 Schrauben, 36 Muttern | |

FIX Another little system, in this case made by MWK of Kitzingen/Main. A date of 1948 is known, and EZ gives production as around 1940. There were less than 30 parts but they were rather unusual. There were 2 types of Strips. One that I'll call a Linked Strip had 2,3 or 4 strips joined together with eyelets, so that the elements could rotate relative to one another. The elements were equivalent in length to strips 3,4,5 & 8 holes long but each had only the end and one centre holes. The ends of the strips are shown rounded. There were 12 different Linked Strips, as shown - they ranged from 2x3h strips to a 3+4+5 which can be seen forming the triangular frame at the lefthand end of the Signal in the next column.

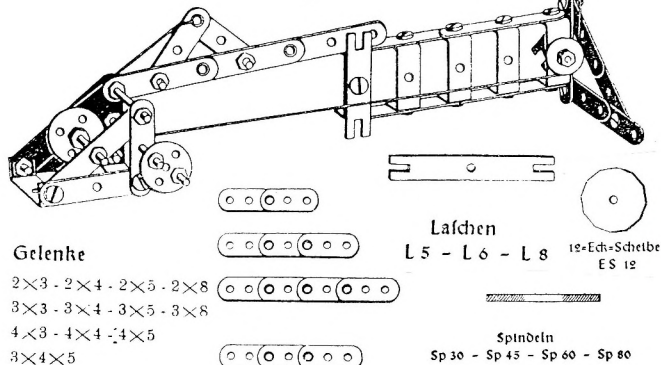
The 'ordinary' type of Strip again had only a centre hole plus rectangular end holes that extended out to the square

ends, see below. These parts were numbered L5, L6 & L8 and no doubt the numbers indicate the lengths; they also came with their ends bent up to form DAS and were then called U3, U4 & U6.



Modell 40 - Bahnschranke

- Modell 40
- 2 G 5x4x3
 - 2 G 3x4
 - 2 G 2x3
 - 4 G 2x4
 - 2 L 5 - 7 U 4
 - 2 Sp 60
 - 2 R - 2 ES 12
 - 4 S 24
 - 2 S 16
 - 20 Schr
 - 40 M



4 Axles were listed, from 30 to 80mm long and are shown threaded at each end to allow Discs (16,24,48mm Ø) to be nutted on; also a Crank Handle threaded along most of its shank. Another, 12-sided, Disc is shown, labelled ES 12, and it scales at about 20mm Ø, but its purpose isn't known. Finally a hex Nut, and a Bolt that's shown with a hex head in the Illustrated Parts and a cheesehead in the model.

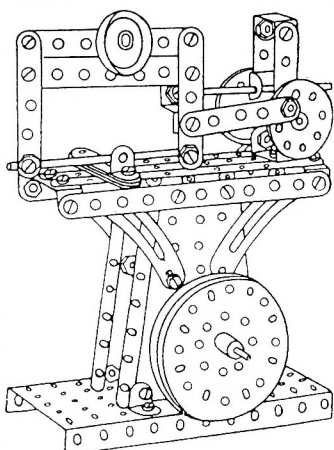
A box lid in Pl.60 of EZ shows a much larger model of an Excavator, but the illustration is too small to see any detail.

Jeannot gave the hole pitch as 15mm and this seems to be for the holes in the '3h' strip element. The holes are 4.3mm and the Strips scale at approximately 10mm wide. All the parts were of steel, tin plated.

FORMATOR This early system is well illustrated in MCS Part 5 and it must be one of the earliest to make extensive use of long slotted holes in Strips, A/Gs and Plates. Another unusual feature is that as well as the normal 3½mm Axles, thin-walled Tubes with split ends were provided which could take wheels and other fittings. EZ gives the diameter of the Tubes as 5mm, and the period in production from 1913 to at least 1915.

FRYDAGH Another simple system from East Germany, made by the Metallwaren division of Frydagh Maschinen und Gerätebau, of Haldensleben. A date of 1946 is known.

In all there were about 40 different parts and as can be seen from the model opposite, some had a MÄRKLIN look to them. However the holes were smaller at 3.5mm and their pitch a little greater at 13.0mm. The thread and Axles are given in EZ as 3mm. The manual cover has a slightly larger model on it and 25h A/Gs with square corners, and a

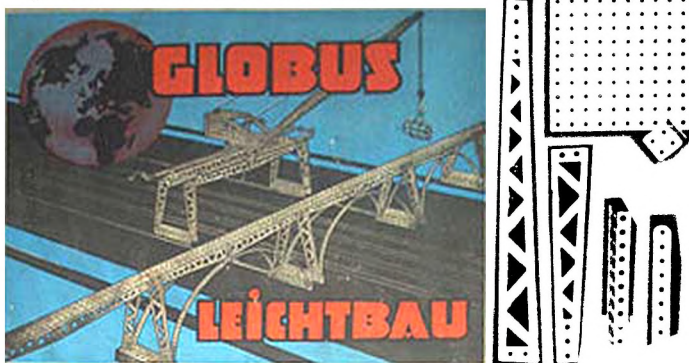


33. Säge

Flanged Wheel with Pulley Groove, like a MECCANO #20, can be seen. Some parts were aluminium, others steel, brass plated or with a black metallic finish.

GLOBUS LEICHTBAU This rather unusual system, also from East Germany, in 1948, had about 34 different parts, all made of aluminium. The holes were at a pitch of 10mm and look about 3mm Ø in a photo of some actual parts (below). That would correspond to the 3mm thread mentioned in EZ but Jeannot gives the hole diameter as 4.1mm. It's not impossible that I'm getting confused with the different GLOBUS described below.

This GLOBUS had 2 sizes of Tapered Braced Girders which allowed some nice looking models - a bridge and crane can just be seen on the manual cover below. Other parts included Strips up to 30h long; 5 & 10h A/Gs; Perforated Plates 2,3,6 & 10h wide from 2*2 to 10*10h, some with a flange on one end. Also large Road Wheels with Tyres of about 50 and 70mm o.d.

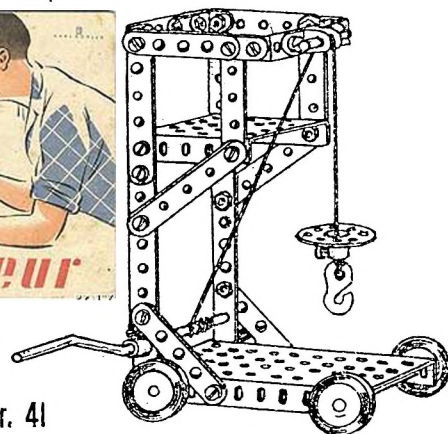


GLOBUS der kleine Ingenieur This was made from about 1947 into the 1950s by, from EZ, Fleischmann of Nürnberg. (There's a small 'R' in the top right corner of the manual cover, below, with what looks like 'KARL KÖWLER' underneath, but its significance if any isn't known.) The 40 or so parts were steel, with a black metallic or cadmium finish, and had 3.3mm holes at 10mm pitch. A Set No.3 model is shown below. The larger Flanged Plate looks to be 4 holes wide but in other models it appears to match the width of the 5h wide smaller one. Notice though that the long (18h) Flanged Plate in the Crane on the manual cover below is also 4h wide. It also seems to have a 14h Strip in it, but apart from that the longest Strip shown is 10h, and there's also a Double Strip of the same length (ie a 2*10h Plate). *Bauklötze Staunen* says that the Strips were yellow and the Plates and Wheels zinc plated.



Modelle aus Nr. 3

Fahrbarer Kran Nr. 41



[In passing there may be at least one other system with the name **DER KLEINE INGENIEUR**. EZ mentions an East German one that owes much to STABIL, and a small box is shown in Pl.60, but all that can be seen is the name, tiny pictures of fair sized models, and a logo that may in-

clude the letters F and R.]

GORDON EZ mentions constructional and electrical sets made in the DDR by Gordon-Apparatebau KG, Schmalkalden/Thüringen between about 1960 to 1972, but without any further details.

HELLER From what I can gather from EZ there was never a MECHANIKUS set in Germany (see 12/321). The tool was called 'Mechanikus' and was included in **HELLER'S STAHLBAU** outfits there. These sets were sold in France under the name **HELLER-MECANICUS** (HELLER-MECHANICUS in 12/321 was an error), and contained the same tool called 'Mécanicus'.

The tool described in OSN, and included in the **MECO** set, was called the 'Constructor' and with its interchangeable heads was more versatile than the 'Mechanikus'.

The period for STAHLBAU is from 1933 to at least 1938 but the French version seems to have been available after WW2 (13/360). MECO dates from about the same time, perhaps from 1934.

HOHA Jeannot listed 2 versions, the first with a hole pitch/diameter of 13.2/4.1, and the second, 13.0/4.6. Both had nickel plated parts and the first at least, rubber Tyres and Pulleys. MCS gives 13.1/4.4, and mentions brightly polished plating with some red and possibly, blue parts. It also mentions the early '30s whereas in EZ a small box is shown among early post-WW2 outfits.

Frank Beadle has some HOHA parts and among them is the 11*5 Flanged Plate (flanged on the long sides) with no holes in the centre 7*3 area, that can be seen in the MCS models. But Frank also has another which, from a photo, seems to be the last 5*5 holes of the 11h long one.

HW Metallbaukasten A photo of a box lid in EZ has METALLBAUKASTEN diagonally across it and the triangular HW logo of Hans Wunsch, the East German toymaker from Niederwiesa/Sachsen. The firm started in 1949 and this was probably one of the early products. The simple Windmill on the lid includes Strips up to about 11h long, a 9h long Flanged Plate, flanged on the long sides, and a 4h Bush Wheel or Wheel Disc.

IMPERATOR See 10/260. EZ gives the Axle diameter as 3.5mm and by scaling, the Strips seem to be about 5mm wide, and the octagonal Hub ¾" A/F.

INDUSTRIE EZ shows an open box with the parts in it, similar to the set shown in MCS. The Strips though don't look as narrow as they appear in MCS and based on the 5mm hole, their width scales at ½". The 8-spoked Pulley Wheels are about 30mm diameter. All the parts have a black metallic finish. Two periods are quoted - 1919 to at least 1931, and 1925 to at least 1935.

INGENIEUR This name is listed in EZ but without any details except that it was made by Ihag GmbH of Nürnberg around 1919.

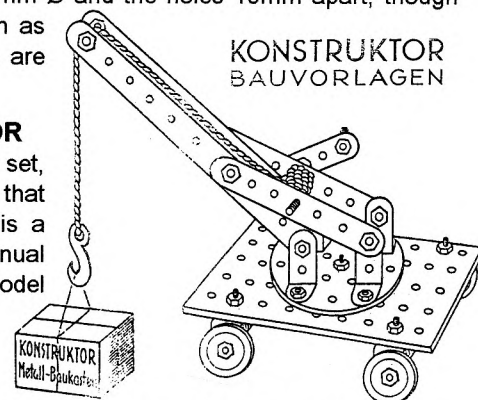
JOLEI This little system from c1950 had only some 12 different parts, all in plain aluminium except for the steel N&B. The holes were 4.4mm Ø, spaced at 11.0mm. EZ has a photo of a backing card with some parts on it - I think I can see 3,4,5,7,9&11h Strips, 1*3*1 & 1*5*1 DAS, an Angle Bracket, and a Screwdriver rather like the MECCANO #36.

KEIM EZ gives only the maker, Keim & Co., A.G., für Blechindustrie, Nürnberg, and the period, c1923 to c1928. A graphic from 1923 shows panels falling off a skyscraper in a strong wind (or so it seems). Perhaps it was an architectural system.

KINEMA EZ confirms much of what appeared in 12/306. The Tubes are 6mm Ø and the holes 10mm apart, though their size is given as 2mm. The dates are c1946 to 1950.

KONSTRUKTOR

An East German set, but apart from that all I have on it is a copy of the manual cover with the model opposite on it.

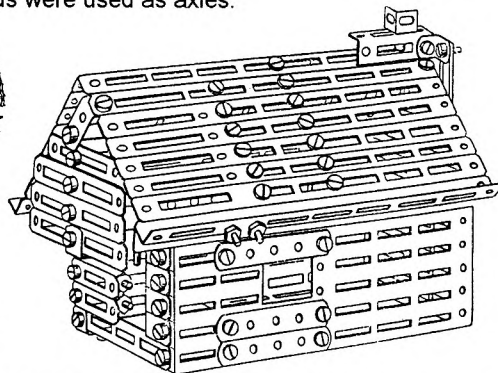


KONSTRUX

A small system of some 30 parts, made in West Berlin by the firm E.P.Damaschke, from about 1946 to 1950. The parts though, painted black, are unusual and, as can be seen in the model below, most have long slots in them with square ends. The holes are 4.1mm Ø and are spaced at multiples of 12mm. Other parts can be seen in a nice, good sized multi-jib Crane shown in EZ, and include DAS, Flanged Plates, small Pulleys, and Discs of several sizes up to about 60mm Ø. The larger Discs have a centre holes, 4 long radial slots, and radial holes between them. These slots are the only ones to have rounded ends. The corners of most parts are slightly chamfered as in the House, but a few on Plates and A/Gs are square - none have the large radius of the 5h Strip in the House. An ordinary Double Bracket is shown in EZ with a similar one alongside except that it has large hexagonal holes in its sides. Its purpose isn't clear but there is a hexagonal section Threaded Coupling that might be about the same size. It looks as if Threaded Rods were used as axles.



Nr. 13



The words Konstrux Deuteron appear on the manual cover under the main KONSTRUX name, but what this signifies I don't know. Also in addition to a logo based on the initials EPD of the manufacturer, there's another (above left) with the name Bergmann, and what might be crossed hammers.

MABA EZ has a photo of the #4 Set described in 12/306. The dates given are c1946 to 1950.

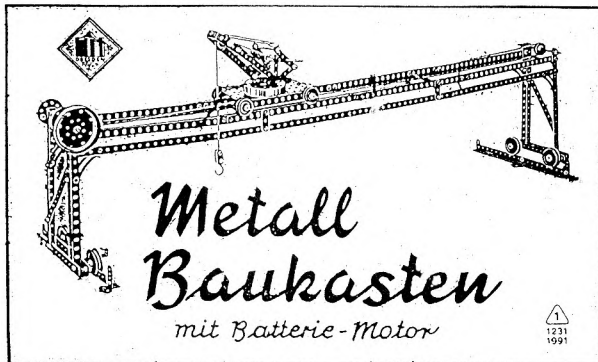
MAFELL From EZ. This system was made by Maschinenfabrik Fellbach GmbH, Stuttgart-Fellbach/Württ., around 1930. It consisted of relatively few, large steel parts, including strong wheels with suitable axles. In many ways it was comparable to the GILBERT WHEEL TOY.

MECANIC/MEKANIK In answer to the point about which came first (13/361), EZ provides the answer. The original name (in 1948) was MECANIC and the original maker, Dörken & Mankel KG, Ennepetal-Voerde/Westfalen. Later (c1959 to c1963) the system was made by Adrian & Rode, Velbert/Rheinland and by that time the name had changed to MEKANIK. Jeannot wrote that the change was made in

about 1950. The Sets 18-24 in MCS were preceded by a series 1,1A...3. MCS doesn't mention that Strips, A/Gs, and small parts were nickel plated.

METALL BAUKASTEN A system from the 1930s with over 50 different black parts. Holes are 4.1mm Ø at 12.7mm spacing.

METALL BAUKASTEN mit Batterie-Motor The manual cover of this East German set is shown below - the logo on it was reproduced in 13/337. EZ says that the parts were packed in a plastic box, and that they were strong and well made, with a black finish. They included 2 sizes of Tyres, rectangular and trapezoidal Plates, and circular parts up to 7h Ø. 4mm Bolts were used, and the pitch of the holes was 12mm.

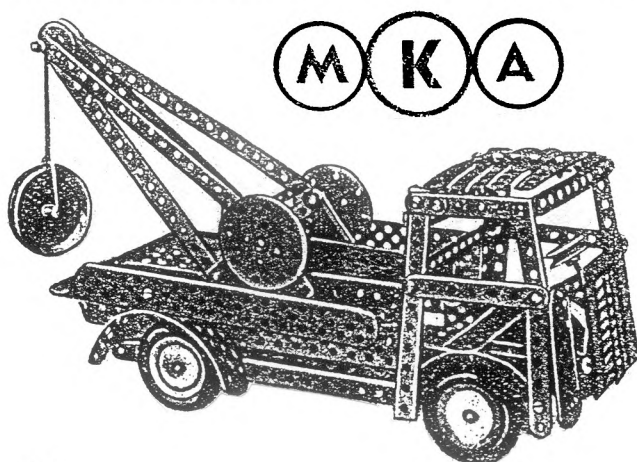


METALLO-TRIGON This 'geometrical' system was discussed in 5/93. EZ gives the period as 1913 to c1926 and lists the firms who made it during that time: Metallo-Trigon GmbH, Offenbach; from 1916, Stanzwerke GmbH, Eisenach; from 1919, Stanzwerke u. Schloßfabriken GmbH, Bad Liebenstein and Sachsendorf bei Eisfeld; from 1920, Stanzwerke GmbH at Sachsendorf and from 1923 at Eisenach again. A photo of a 1916 No.2 Set shows several types of spoked Pulleys with 3, 4 and 6 spokes, all straight, and a pair of the smaller (6-spoked) ones are fitted with Tyres, as shown in the original sketches of the parts in MCS.

MEWEKA From EZ: this DIY system (see 12/321) was made until c1960.

MIKRONO Konstruktionsspiel EZ lists this system as being made by M. Löffler of Altona/Elbe from 1918 to ?, but no details of it are given. If I've understood correctly it already existed in 1916 under the name **ROSETTA Konstruktionsspiel**, and also mentioned is **PYTHAGORAS Konstruktionsspiel** in connection with the words 'objection/Patent/renaming', but I can't sort out exactly who did what to whom.

M K A Probably from East Germany in the 1950s, this system had about 40 parts, all plain aluminium except for steel Axles, and included both TRIX-style and MECCANO-



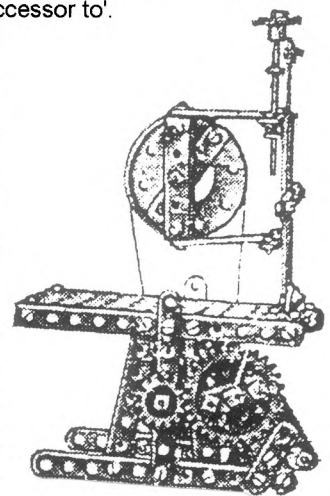
style Strips. The hole pitch at 11.2mm was larger than TRIX but smaller than MECCANO, and the holes were 4.1 and 4.3mm respectively. Mystery Part #3 from 2/25 may be a M K A part, or if not it's very similar. The model at the foot of the last column gives an idea of some of the parts. There are 3 sizes of Pulley with Tyres to fit the middle one. All of them, and the 5h Ø Disc, have tapped bosses.

M K A may well be connected to **M F C**, already in MCS - the parts look the same, the same range of PNs are used, and those for the N&B, the only parts that can be positively identified by PN, are identical.

MODELLO On the logos (12/312), Jeannot wrote that the JB one was that of the first manufacturer, Johann Brandner of Regensburg (1919-20). Ernst Plank at Nürnberg then continued (EP-MODELLO) until at least 1928. EZ confirms the hole pitch as 10mm with an Axle diameter of 4mm.

MÖWE The name is sometimes spelt **MOEWE**. This system was made from about 1946 until perhaps the early 1950s. A leaflet shows what looks like a metal box, and has at the bottom 'Made in German - Brit. Zone - N. Rh. W.' The only mention of a maker is 'Möwe Metall-Baukasten-Fabrik'; in EZ it is given as 'Möninghoff & Weiß Nachfolger' - the last word seems to mean 'successor to'.

A page from a manual shows 2 models which can be built from Sets 1 and 2, and for which about 20 different parts are listed. These include Strips 3,5,7, 8,11,12 & 20 holes long; Achsenträger which may be Double Bent Strips; a Baseplate which looks as if it is 5*11 or 12h, and may have flanges on its long sides; 2h Ø Loose Pulleys; 5h Ø Flanged Discs with a pulley groove and a large centre hole, like STABIL; 25 & 85mm Axles which are probably Threaded Rods; a Crank of some sort; and the large and small Gears that you may be able to see in the Bandsaw above, and which look as if they might be similar to the STABIL patented gears.



Some of the parts in a set differ from those in the models. The Baseplate is flat and has 12*5 holes, while the 5h Ø Flanged Discs appear not to have a centre hole but instead a boss, fitted to the recessed side, with 6 holes at 1h radius around it. There's also a Double Bent Strip and two 8h long Flat Sector Plates with a 5+7*3 hole pattern. They, like the Baseplate, have sharp corners.

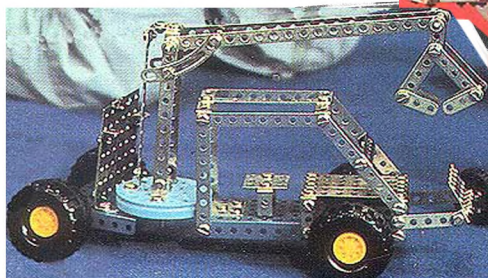
To give an idea of the size of the sets the other model, a Double Swing, uses 57 parts plus 20 Angle Brackets, 8 Pulleys, 80 Bolts and 100 Nuts.

Nothing is known of the hole spacing or diameter but my impression is that the pitch is nearer ½" than 10mm, and in that case the holes scale at between 3½ and 4mm.

MWK This was an East German system from between WW2 and the early 1950s, with plain aluminium parts that had 4.1mm holes at 12.1mm pitch. In all there were about 36 but the models I have seen show only the following: 2,3,5,7,11h Strips; 1*5*1, 1*3*1, 2*1*2 DAS; 1h Angle and Reverse Angle Brackets; Double Bent Strip; 7*11, 3*11, 3*7 Perf. Plates; a Tapered Plate (see model at top of next column), & a 2h Triangular Plate (perhaps with a centre hole); 28mm and 62mm Ø (pulley?) Wheels, and a Handle, all of which are nipped onto 50 and 90mm Threaded Rods; N&B.

PITT EZ gives the dates as 1948 into the 1950s; MCS has the end point as 1965. The Flanged Plate was blue and the Pulleys red. The Spanner shown in MCS has 'Pitt' on it but one found in an unused set has DUX - both systems were made by Markes.

PLASTICON Another East German system, made by VEB Plasticart at Annaberg-Buchholz. The date it was introduced isn't known but the boy on the manual cover looks later than the 50s; it continued until around 1987. A B&W copy



of the manual cover is all that's available but it shows several models and is for Sets GB1, GB2, EMB3, & EMB4. VEB Plasticart also made BURGSTÄDTER (12/324) and nearly all the parts in the models look like BURGSTÄDTER ones, including the Slotted Curved Strip that can be seen in the Big Wheel above. Its hub is probably the large Flanged Disc Pulley that's used in the Grab model, and again it appears similar to the BURGSTÄDTER one. The large Road Wheels look rather like the plastic CONSTRUCTION type with the push-in hub.

RECORD Another small set from sometime in the period 1945 to the early 50s. A photo of a box lid is shown in EZ but with no details. The logo on the lid has a 'W' in it and perhaps an 'R'.

ROBO EZ says the maker of this little set isn't known but the logo is 'EFFEM'. The set was also known as BAUKERL ROBO and dates from the 1950s. The models (see MCS) are made from wooden Blocks and 4mm diameter Rods held together with 'J' Clamps. MCS also includes the Spanish system EL INGENIERO MECANICO which appears to be identical, and is said to date from 1940.

SACHSENMEISTER This East German system had small parts with 3.3mm Ø holes at 7.5mm spacing. Some were bare aluminium and some steel with a metallic black finish. There was also a theme set with special parts to make Tractors/Trailers. From EZ. The system was made from 1948 to at least 1955 by Sachsenmeister Metalbau Kurt Müller of Markneukirchen/Vogtland. The Nr.1 Outfit allowed various electric and steam powered models to be built, and the theme set models are described as attractive in red, green and silver.

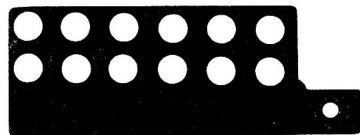
SATURN A system from the early 1950s with brown, nickel and bare aluminium parts. The pitch of the holes is 12.0mm, their diameter 4.1mm. The lid of a (quite small) No.2 Set is shown in EZ and I can see that the model on it has 4 wheels. No other details are available.

SCHEFFLERS This system was mentioned in the piece on BURGSTÄDTER in 12/324 and EZ confirms that BUR followed on from SCHEFFLERS. The start date was probably 1955 and the original maker, Artur Scheffler of Burg-

städt/Sachsen. The change of name occurred when the company became VEB Metallspielwaren Burgstädt around 1960. In a set the Strips and the like are black, small parts including Pulleys nickel, the 5h Ø MÄRKLIN-style Pulleys red, 5*11 Flanged Plates blue and Flanged Sector Plates green. The hole spacing is said to be 'ca. 12.8mm'.

SCHWERKA Another small system in EZ from the early post-WW2 years. It was packed in a small wooden box and the parts were bare aluminium. By chance I recently came across a very similar set to the one shown in EZ, in a box 11*8*1" with wooden sides and partitions, and the bottom and sliding lid made of cardboard. The latter is orange with a boy and a Crane on it, and METALL-BAUKASTEN NR.1 plus MECHANICAL CONSTRUCTION BOX NO.1. Among the various parts in it were a few Strips that are probably original. They are bare aluminium and have 4.1mm holes at 12.7mm pitch. One is a MÄRKLIN-style 5h slotted Curved Strip and it can be seen in the Crane on the lid, along with some 20 other parts including Strips up to 15h long, a MÄRKLIN pattern 5*11h Flanged Plate, and a similar Plate but only 7 holes long. Among the other

parts found in the box were 3 black Windmill Sails which look just like the STRUCTOMODE ones in MCS except that the fillet in the inside corner is convex instead of concave. Their length overall is 95mm, width 35mm, and the large holes are about 7½mm Ø. If anyone has a Canadian one I'd be interested to know if it matches.



SICO EZ lists this as a set from Keim & Co. of Nürnberg, first made in 1932, but with no other details.

SIEMENS A system from 1933 with wooden and nicked steel pieces. The only information available is that there were about 78 different parts and the hole spacing was 50.0mm.

SONNEBERGER EZ fills in some of the details missing from MCS. This system was first made by Schoenfeld & Boetsch of Sonneberg in 1948. From 1955 it was produced by VEB Injecta Steinach, and then from 1971 by VEB (K) Metallwaren Schmerbach. The end date isn't known. The hole spacing is 10.0mm and the Axles and Threaded Rods are 4mm Ø. Apart from the pieces in MCS, Sprockets and Chain came later. The parts were made of anodised aluminium and in the sets shown most have their natural colour, but some Strips are red or yellow, A/Gs are light blue, and some Plates yellow. Jeannot mentioned white and gold coloured parts as well, and that the holes are generally 4.1mm Ø but some are larger with in one case, 4.1 and 5mm holes in the same Strip.

SPRANGER This was a system with 24 steel and 16 wooden parts. The former were plated with nickel or tin; Pulleys were of wood with brass plated steel bosses. The holes were 3.9mm Ø at 12.0mm pitch. EZ gives the manufacturer as Gustav Spranger of Klingenthal/Sachsen and the dates as from about 1933 to about 1955.

STABA This is the East German one described in 8/195 and EZ gives some more details. Production was started in 1948 by the Gebr. Ehrlicher of Erfurt; subsequently the company became successively, H.H.Ehrlicher in 1949, Otto Hörsejau (1953/54), and Karl Teuteberg in 1955. STABA

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.

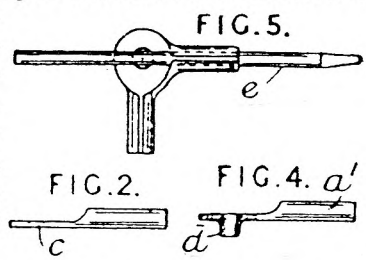
STRUCTATOR From EZ. This system was made by Bing between 1913 and c1917. Then, if I've understood correctly, from 1919 to 1921 it was produced by 'H.Huck, Inh. Adolf Huck' of Nürnberg as '**TECHNIKO/TECHNICO**'. A firm called J.Kleiner of Houndsditch advertised STRUCTATOR in G&T from May 1922 until April 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 PI.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.

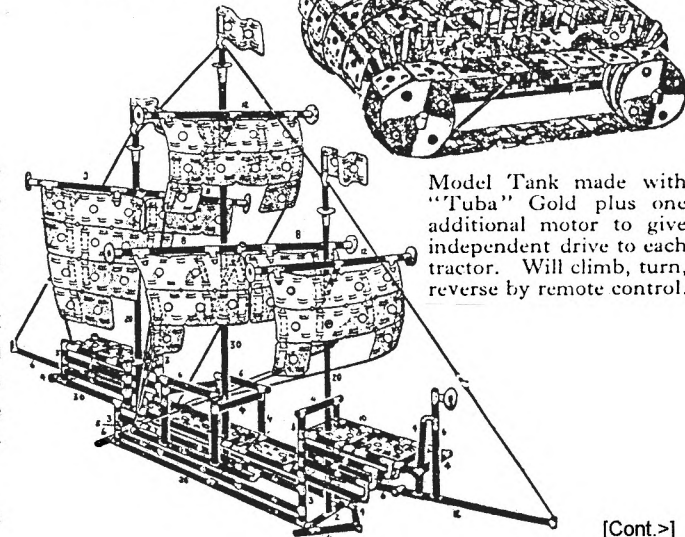
The dates given in EZ are from the 1950s to the 1970s; the maker, Krause & Co., later became VEB Metallspielwaren Thale/Harz.

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.

WEMA This interesting looking 10mm system with alternate holes in the Strips and A/Gs, is in MCS part 5; it was made by J.Eberspächer of Esslingen/Neckar though production of the sets was at Nebenweig (assuming that's the name of a place) from 1946 to 1948. To add to the colours given in MCS, the Face Plate is orange, and the Gears and large Flanged Discs are yellow. The latter appear to have bosses.

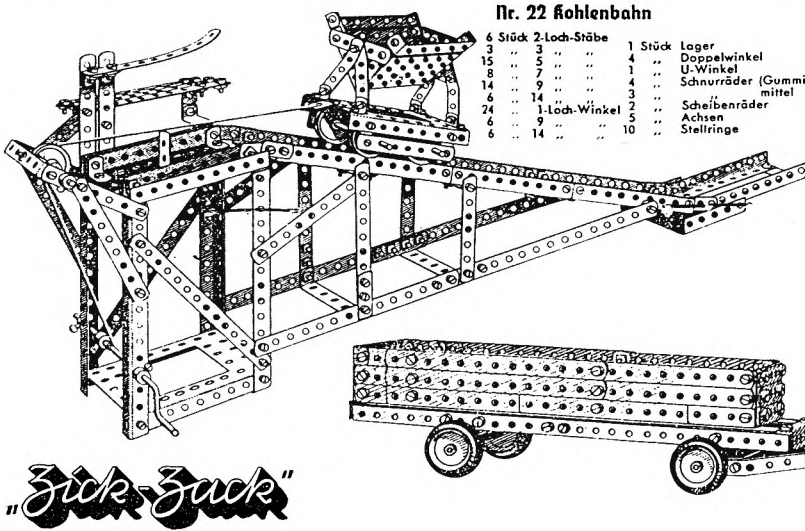
WESTFALIA A small system of about 20 steel parts which were either red or brass plated. The hole pitch was 14.1mm and the diameter 4.2mm. See also **TECHNIK** above

ZICK-ZACK This system dates back to the 1930s - it was made in Nürnberg, originally by Wilhelm Krauss, but from 1938, by Keim & Co, and that change saw a revision of the sets. The end date isn't known but Keim & Co. continued until 1960.

The holes were 5mm Ø, at 13.0mm pitch; some parts had a nickel finish, some were black metallic, and some were painted red or blue. Axles were made of aluminium.

30 parts are listed for models 21-23 on the page of the manual I have - • 2,3,4,5,7,9,14h Strips; • 1*3*1 & 1*5*1 DAS; • 5,9,14h A/Gs; • 4 Flanged Plates 5h wide with flanges along their length of 2,4,5, & 9 holes, and also a 5*9 with a centre 3*5 cutout; • Angle, Double, & Reversed Angle Brackets, and a Double Bent Strip; • 2 Pulleys both about 2h Ø, one with a boss, and the 6h Disc in the Tractor below which scales at over 60mm Ø; • an Axle, Crank Handle, Collar, and Rubber Ring for the Pulleys; • and a 90° Twisted Strip (gedrehte Stäbe) that looks well over 3h long but has only end holes - it can be seen in the Bridge tower below.

The ends of the Strips in the drawings of the models vary from large radius to nearly fully rounded; the Plates and A/Gs have sharp corners.



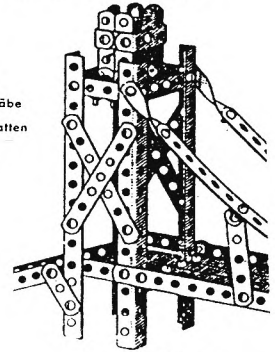
Nr. 22 Kohlenbahn

6 Stück	2-Loch-Stäbe	1 Stück	Lager
3	3	4	Doppelwinkel
15	5	4	U-Winkel
8	7	1	Schnurräder (Gummi) mittel
14	9	2	Scheibenräder
6	14	3	Achsen
24	1-Loch-Winkel	2	Stellringe
6	9	5	
6	14	10	

Nr. 23 Trecker

12 Stück	2-Loch-Stäbe	6 Stück	9-Loch-Winkel
8	3	4	14
4	4	6	3-Loch-Winkelstäbe
13	5	8	4-Loch-Grundplatten
10	7	2	5
24	9	2	9
6	14	2	2
4	5-Loch-Winkel	2	2

2 Stück	Doppelwinkel
2	4-Loch-Grundplatten
1	5
1	9
2	2
5	Schnurräder mittel
1	Stellringe
1	Kurbel
1	Achse



Nr. 21 Brücke

8 Stück	2-Loch-Stäbe
8	3
12	4
16	5
8	7
28	9
4	14
4	gedrehte Stäbe
4	3-Loch-Winkelstäbe
20	1-Loch-Winkel
8	5
8	9
2	2-Loch-Grundplatten
2	4
2	2
2	2
2	2



That was a Good Idea - The ASSEMBLO Patent

The French system ASSEMBLO was the first to use what many in this country will know as the DINKY BUILDER method of construction. Its French patent was granted on July 17, 1931; the UK application, which became Pat.No. 384191 was dated May 23, 1932 and was in the name of Marc Aurele Alfred Fay, a French citizen of 1, Avenue de Beauval, Garches, Seine-et-Oise.

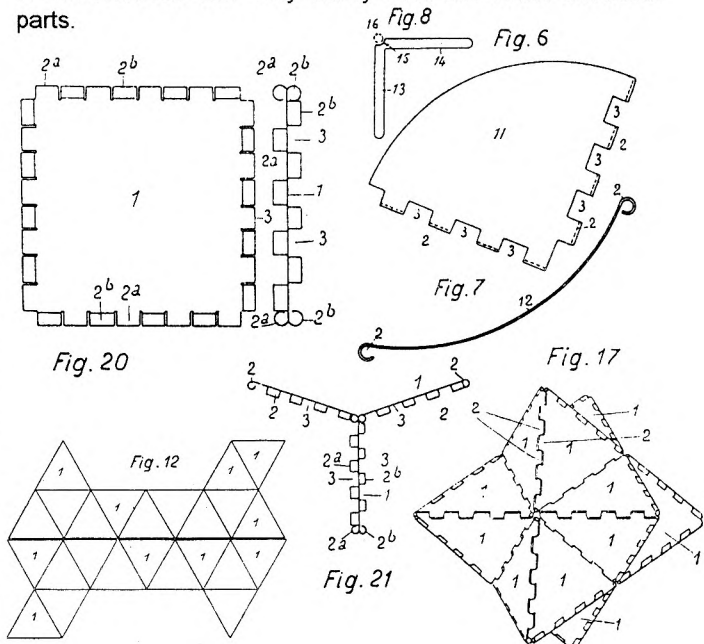
The basic idea is very simple, once you've thought of it, and presumably ASSEMBLO was quite successful, given that similar systems appeared in America as STANLO in 1933, in the UK as DINKY BUILDER in 1934, and in Italy as FALCO, sometime in the 1930s. ASSEMBLO claimed patent protection, in France and abroad, and as far as I know was the only one of the four to do so.

Two types of part were covered by the Patent. The ordinary Plates had gaps with formed tabs on the edges, all to one side; the other sort had a continuous series of tabs but formed alternately to either side of the Plate, as in Fig.20. This last feature was unique to ASSEMBLO and allowed more complex models to be made. Fig.21 is given in the Patent as an example. Another unique feature which added versatility was the Angled Rod (Fig.8) with the concave outer corner to allow another Rod to pass at right angles.

2 parts in the Patent were never produced, the Quarter Circle, Fig.6, and the Curved Rectangular Plate, Fig.7. Examples were given of making up 3-dimensional solids from a flat assembly of Plates - the 8-pointed star (Fig.17) from Fig.12 is a nice one. Models like that could help to enliven geometry lessons.

The side of the largest ASSEMBLO Square Plate measured about 70mm, a little larger than the 63mm of DINKY BUILDER, and slightly smaller than STANLO at 72mm. ASSEMBLO and STANLO Rods were about 3mm Ø, and DINKY BUILDER about 2.6mm. ASSEMBLO had 40 Plates, STANLO 20 and DINKY BUILDER 7, plus another 3 of those with painted doors and windows on them.

My thanks to David Hobson for sending the Patent, and to Bill Harrison who very kindly sent me some STANLO parts.

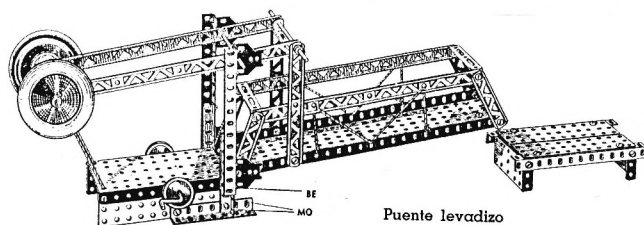


Notes on EL NUEVO INGENIERO ARGENTINO

After WW2 a number of new systems appeared in Argentina, most of them based on MECCANO, but one or two drew inspiration from elsewhere. EL NUEVO INGENIERO ARGENTINO (ENA henceforward) was clearly a copy of ERECTOR, and most of what is known of it is included in MCS/FB. This adds a few details to the /NZ entry, such as the manufacturer: C.C.I.A., Concepcion Arenal 4855, T.E. 54-0664, Buenos Aires; and dates of ? to 1960, against the original 1945-55.

But more details are now available thanks to Richard Symonds who recently came across the remains of a No.2 outfit. He kindly sent me a photo and a Curved Girder, and also lent me the Manual.

Modelos para construir con los N^{os} 5 y 6



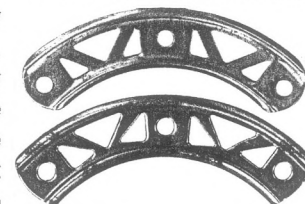
The full colour cover of the Manual is similar to the box lid, and has a man and boy starting work on a model of the suspension bridge in the background. Inside, apart from the Spanish text, it could easily be mistaken for a genuine ERECTOR manual. The illustrations of the models are all identical to those in a 1949 ERECTOR manual I happened to have, with the layout of some pages being exactly the same. ENA models are shown for Sets 1 & 2, 3 & 4, and 5 & 6 - the first come from the ERECTOR models for Sets 1 & 1½, the 3 & 4 from the ERECTOR 2½ & 3, and some of the 5 & 6 are from the ERECTOR 3½, and some from the #4½. A page of Standard Constructions is also identical, and so are the 2 pages of Illustrated Parts, except for the motors. For ENA the P55 and A47 motors are shown, together with a No.1 transformer. In fact of all the parts shown, the A47 was the last to be included in the ERECTOR range, in 1950. So this particular manual must have been after that. The manual cover in MCS doesn't have the 'ES UN PRODUCTO C.C.I.A.' in the bottom right corner, and so must have been a different edition. In passing though the name C.C.I.A. is there, the only address is that of the Buenos Aires printer.

Of the 115 or so parts shown in the Illustrated Parts many, including all the gears, Braced Girders, motors, boiler, chassis, fairground and electrical parts, weren't needed to make any of the models shown for sets up to #5/6. At the time these may not have actually been avail-

able because a page of larger ERECTOR models is headed 'in preparation', and in the Introduction a #7 Set and a motor are promised for the future.

The different parts in Richard's Set are 2½", 5" and 2½" Curved Girders, which look darker than normal nickel ERECTOR parts and may be polished steel; a bright (or grey) looking 2½*5" Flanged Plate, and a yellow one 1*2½"; red Trunnions and Flat Trunnions; brass finished Bush Wheel and 1" Pulleys; a bright Wrench, MM; and a 4" Axle and Crank Handle. From the models in the Manual there ought to be 10" Girders and DAS in the #1/2 Outfit - additional parts in the #3/4 would be large MH Road Wheels, 5*3h Perforated Plates, and 5" Curved Girders; and in the #5/6, 25h, 13h and 7h A/Gs, 6h*6h #MY and 25*6h MN Baseplates, (narrow) Strips, and the little House, MX.

From the photo all the parts look just like the ERECTOR pattern except the Curved Girder (below) which has tapered cross bracing instead of the normal parallel type shown underneath. The straight line pitch of the outer holes of the ENA version at 2.46" is slightly less than the standard 2.50", and their diameter is slightly larger at 4.4mm. Richard wrote that some of the parts have rather ragged back edges but that the Spanner is superior to the ERECTOR part.



SUMMARY OF MANUAL •Name: EL NUEVO INGENIERO ARGENTINO •Details of maker: C.C.I.A. •Dates &/or Ref Nos: printer's name on IBC. •Page size: 275*174mm deep. •No. of pages: 24 inc covers, un-numbered. •Language: Spanish. •Printing: b&w line drawings, multi-coloured covers. •Page Nos. of Illustrated Parts List & highest PN: 22-23, OF (ERECTOR notation). [•No Set Contents] •Sets covered: 1-6.

•No. of models for each set: 1&2, 46; 3&4, 26; 5&6, 22. •Name, Page No. of first/last model of each set [No Model Nos.]: 1&2: Criba de arena, 3; Poste telefónico, 6. 3&4: Vagón de sube y baja, 8; Grúa



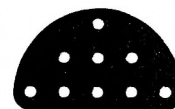
de viga giratoria, 14. 5&6: Vagón cerrado, 15; Puente levadizo, 20.

•Other notes: 1) The names of the models above in a 1949 ERECTOR manual are: Gravel Screen, Telephone Pole, (sets 1&1½); See Saw Wagon, Revolving Crane, (2½&3); Box Truck, (4½), Liftbridge (3½). 2) Larger ERECTOR models are shown on p21 and the back cover.

More on METALCRAFT This was the small system with parts just like PIONEER (14/393), but with no 11h A/G. Soon after OSN 14 appeared a plastic bag of parts was found in a mixed lot from a dealer, and folded up inside the bag was the back page from the METALCRAFT manual, identical to the one that was the source of the earlier information. The parts are shown in colour on its outside face and on the other side (p15) is the Aeroplane model that is shown for PIONEER in MCS, and that has 'Page 15' on it too. 2 of the A/Gs (PN 21) are called up in the Parts List for the PIONEER model (and there are 2 less 9h Strips), but none are actually shown in it. However in a different PIONEER manual belonging to Malcolm Hanson, the same model is shown on the same page but shows the A/Gs used in the rear fuselage. So it's likely that the illustrations weren't changed in the manual for the early PIONEER sets, and this reinforces the notion that METALCRAFT came before PIONEER. All the PIONEER models that use A/Gs could easily be made by substituting Strips for them.

All the different METALCRAFT parts were in the plastic bag except the Spring Clips, the Spanner, the Road Wheel, the Hook, the Semi-circular Plate, and the 25h Strip, and no 'foreigners' were present. All the parts were just like VOGUE except that the red parts were a lighter shade, but not quite as bright as the PALIKIT red. VOGUE-style parts vary in detail and the boss of the Pulley found was the longer type, the Axles and Crank Handle had the painted black finish, and the Nuts were square.

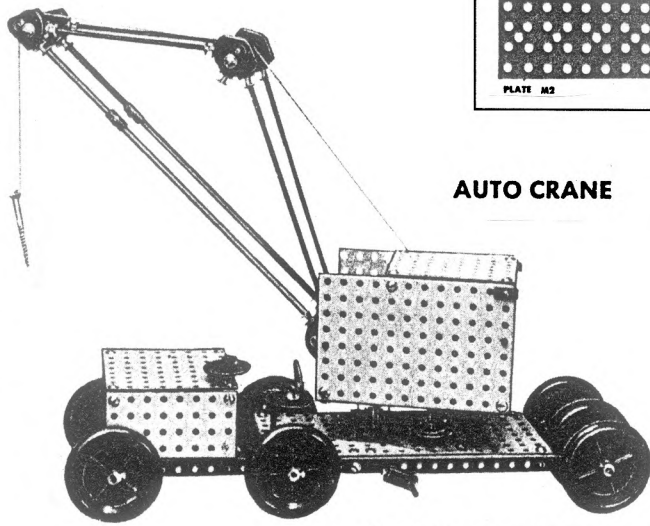
Along with the bag of parts were some loose VOGUE-like parts, most of which certainly weren't METALCRAFT. There were though 4 Semi-circular Plates which just might be - 2 were in matching red, and the others were very slightly darker and had 2 extra holes, as shown opposite. Similar ones with the extra holes were found in Malcolm's PIONEER set but again there were too many 'extra' parts to be sure that they were original.



NOMA BOOMTOWN

This early post-WW2 U.S. system is unusual in concept, with models made up of Plates held together by Brackets and 8 & 16h A/Gs, plus frameworks of Rods held in special Clamps. All the parts are steel and the holes are the standard 1/2" apart, but they are larger than usual at about 5mm. The N&B are 10-32 (4.8mm) but bosses, and some small parts like the ERECTOR-style Collar, are tapped 5-40.

The PARTS All the above has come from MCS, which has illustrations of all the 40+ parts and also shows a page of Construction Details from a manual. These give the general idea but all was much clearer after I'd looked through a complete manual which Richard Symonds kindly lent me recently. It's probably the one from which the MCS pages were taken and opposite the Construction Details is an explanation of each of them, and the illustrations below which show how the Clamps are assembled. The spacer is two so-called Half Balls and when the Clamp is tightened they lock onto a Rod passing through them. If only one Half Ball is used the Rod is free. Radial Rods are gripped in the



AUTO CRANE

Assembly) is in turn bolted to the Wheel Disc, and holds the Rod.

The bracket at 'e' is called a Straight Clamp and its top hole is tapped. It is used in several different ways, to form a crank handle ('d') for instance, or as a stand-off bearing at 'j'. The Rods in 'j' are joined by two of the (half) Couplings held together by a 5-40 N&B.

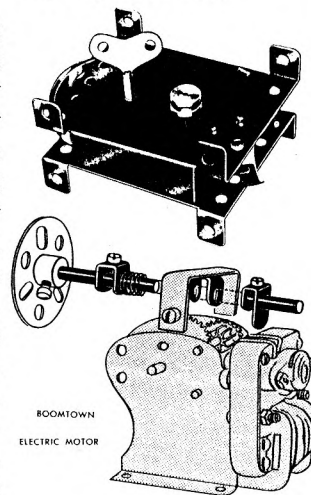
The Plates are all 8h wide and 4,8,12 & 18h long. They are fully perforated and in the page of Illustrated Parts, a

lengthways centre row of staggered holes is also shown, as in the Plate above. The centre holes aren't shown in any of the models or other pictures in the Manual, so perhaps weren't in the original parts. The holes in the Bush Wheel also show variations in different illustrations. Four of the usual 8 holes are replaced by radial slots in one, and the one in the motor below certainly has slots though apparently only 3.

The Pulleys scale at about 1" dia; the (road) Wheels at 3" and they should be easy to recognise with their 4 ribbed 'spokes'. In the Manual they are said to be red. On colours MCS mentions red, blue and black - the Rods, Clamps and brackets in the Manual look as if they might be black.

The MOTORS

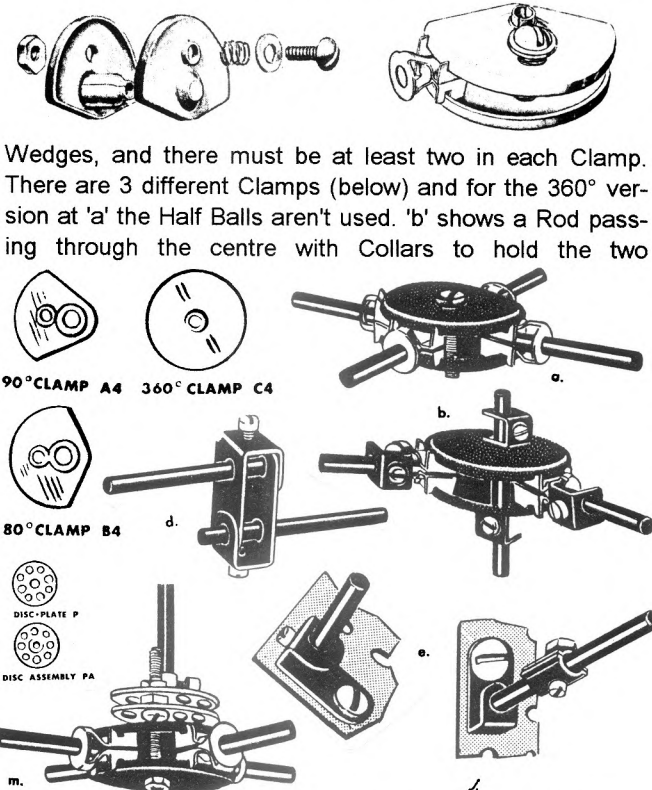
The spring motor opposite is listed as Part AU at \$1.65. It has a stop lever but no reverse, and a rubber band drive was suggested. An electric motor, AS, is listed at \$6, and another, Electric Motor and Gear Train, AJ, at \$7.80. The only one illustrated is shown opposite - no doubt #AJ. It is described as an AC, 110 volt, shaded pole motor with gearing to reduce the speed. The gear shift lever, for forward, reverse and neutral, (shown above the motor) was



packed separately and the yoke was to be bolted on, on one side only, through the centre top hole of the sideplate. Drive was to be by cord or rubber band. A photo of the gearbox in the Manual shows a worm on the motor shaft driving worm wheels above and below it; a pinion on each of the worm wheel shafts engages a gear wheel which is moved across by the Straight Clamp on the gear change Rod, as it is turned by the Bush Wheel.

The SETS

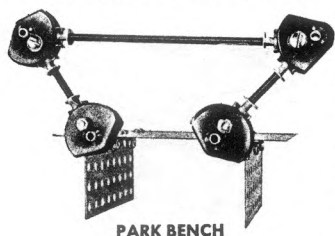
The manual has photos of the open boxes of Sets Nos.3,6,9 & 12. No others outfits are mentioned anywhere. The No.3 is said to have 95 major parts (rods, plates, wheels, angle beams, clamp plates, wedges, etc) and 78 others including screws, nuts, springs, washers, etc. - 4 Wheels, 10 Clamps and 8h A/Gs can be seen. No.6 has 147 major and 141 minor parts with the same examples of each quoted. The photo shows 4 Wheels, 4 Pulleys, and at least 2 Bush Wheels or Wheel Discs. The No.9 has a spring motor and is called the Mechanical Motor Set. It is said to have 206



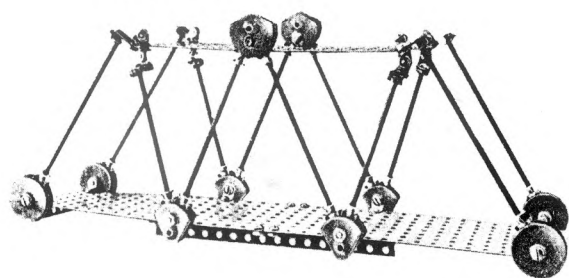
halves of the Clamp together. In that case the Rod doesn't seem to be necessarily firmly held, but it isn't entirely free either if the Collars exert enough pressure to hold the Wedges securely. 'b' also shows how a Collar on a radial Rod, with one of its arms in the Wedge, can be used 'when a very rigid assembly is required'. 'm' shows how a Rod can be positively attached (albeit a touch tortuously) to the 'a' construction - an 8-h Wheel Disc (called a Disc Plate) is bolted to the Clamp and an 8-h Bush Wheel (called a Disc

major parts including 62 Rods, 10 Plates, and 6 Wheels, and 236 minor parts. The No.12 with the electric motor is the Electric Motorized Set and has 212 major parts with the same numbers of Rods and Plates as the No.9, but 2 extra Wheels, and the same number of minor parts. The parts are packed in 2 layers and at least 6x8h and 4x16h A/Gs can be seen, together with 5 Pulleys and the same two groups of Bush Wheels/Wheel Discs as in the No.6.

The MODELS The Manual contains models for each of the 4 sets. Most are straightforward mechanically although a few use various cranks to achieve reciprocating motions. The spring Motor is shown fitted to only two, and the Electric to only one. Many of the models look reasonable, although a little angular perhaps when vehicles are made up from Plates in the main. When the Rods are used for open frameworks the Clamps look rather clumsy, particularly in the



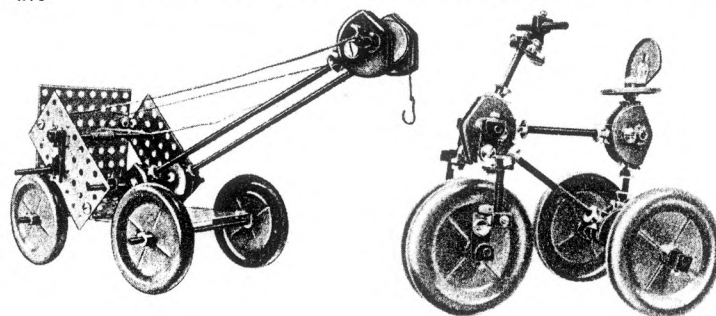
PARK BENCH



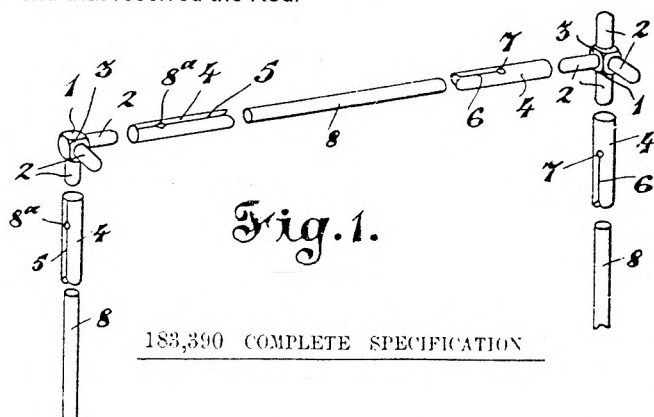
case of the smaller models. The Auto Crane on the opposite page is a No.12 model; the Park Bench and the Tricycle below are for Set No.3; the Hoist is a No.6, and the Bridge is a No.9.

The only date known is Copyright 1947 on the back of the Manual. Also mentioned there are Patent Nos. 2410874 and 2410875.

SUMMARY OF MANUAL •Name: NOMA BOOMTOWN METAL CONSTRUCTION MODEL SET •Details of maker: Noma Electrical Corporation, Noma Building, 55 West 13th St., New York 11, New York. •Dates &/or Ref Nos: © 1947 on BC. •Page size: 218*141mm deep. •No. of pages: 32 inc covers. •Language: English. •Printing: models are halftones; cover is red with B&W halftone. •Page Nos. of Parts List/Illustrations & highest PN: 30-31,Z. [No Set Contents] •Sets covered: Nos.3,6,9,12. •No. of models for each set: 33,26,26,14. •Name, Page No. of first & last model of each set: 3: FRUIT WAGON,6; PUMP,10. 6: DELIVERY TRUCK,11; SEE-SAW,15. 9: TRACTOR,16; SCHOONER,22. 12: ROTATING PIER CRANE,24; CENTRIF-GO-ROUND, 29. •Other notes: 7 of the models are also shown on p3.



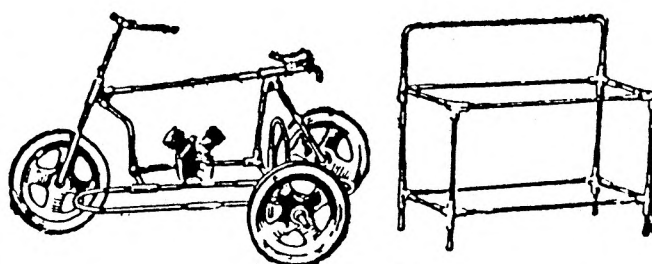
The TAN-SAD Constructional Toy In going through *Games & Toys*, David Hobson came across this previously unrecorded little system, and kindly passed me the details, together with a copy of the relevant Patent. It was No.183390, in the names of Frederick Hagger Headley and Percy Herbert Brant, both of Birmingham, and the Application Date was October 1921. The drawings in the Patent (below) show that Rods were to be united with spigots on cast 'connection elements', which I'll call Joints, by springy, split Sleeves. They were to have a single slit along their whole length, and one or more additional slits at the end that received the Rod.



Tan-Sad Ltd. was well known for many years as a maker of good quality prams, and according to *British Tin Toys* was founded by F.H.Headley, who took over an existing business in 1920. The name 'Tan-Sad' was registered as a trademark in Jan. 1922. The first reference in G&T to the TAN-SAD Constructional Toy was in March 1922, when, in a report on the British Industries Fair, it was said to be put

up in two boxes, a motor and aeroplane set for boys, and a furniture set for girls, at 5/- each. It consisted of soft metal castings, steel clips, and 1/8" steel rods of various lengths. No N&B were required.

The Sets were included, among toy prams and scooters, in Tan-Sad's May 1922 ad, with the boys' set being described as 'Aeroplane & Cycle Outfit', and the girls' as a 'Furniture Building Outfit'. The address was Freeman St., Birmingham. The 2 models below were shown, together with a Bed and Monoplane in similar style. As can be seen 4-spoked Wheels were provided, also a Saddle and a small V-twin Engine. In the Monoplane the latter can be seen to have the proper thickness and so may have been a casting.



A write-up of the BIF in the June issue mentioned the Constructional Toys, at 5/- retail with substantial trade discount, but there were no later references to them, and nor were they included in any other Tan-Sad ads. So were sets ever actually produced for sale? And if not, why not? Perhaps the price was too high, or perhaps there were problems in producing parts sufficiently accurately to ensure a tight enough fit between the different parts. Please go hunt in your box of odds and ends to see if there are any possible TAN-SAD parts there.

STRUCTO This is about the standard construction sets, and not the Auto-Builder kits: the two don't seem to have had much in common. From the MCS entry, STRUCTO looks like one of the more interesting and original early U.S. 1/2" pitch systems, with a number of rather unusual parts including cast gears, pulleys, etc, but I've no first hand knowledge of the parts apart from owning examples of the Multi-Unit Girder and the Twist Beam - more of them anon. These notes have been prompted by my accumulating various references and items of paperwork that add a little to what is in MCS: perhaps others will be able to shed more light on the history of this system, and its parts and models - particularly the latter because I haven't seen the model pages of a manual.

STRUCTO was made by the Structo Manufacturing Co. of Freeport, Illinois; it appeared in 1913 and production ceased at the end of 1919 as a result of an out-of-court settlement of a legal action brought by Meccano. Gilbert bought the remaining valid patents and perhaps the idea for the 1924 ERECTOR Single-Flanged Plates came from STRUCTO.

The SETS Ron Michalowski kindly sent what seems to be an early brochure, with 'Second Addition' on the front cover, and the code 510-5-14 on a Leaflet that was with it. Outfits 1-6 with linking sets 1A-5A are shown, and the #6, which cost \$20, was quite a large set with 456 N&B, 290 Strips of various lengths, 24x25h & 12x11h A/Gs, and 27 Gears or Sprockets.

Later 3 'Structo Engineering Outfits' were added, called Junior Engineer, Structo Engineer, and Chief Engineer. No list of contents is available for them but, unlike the standard sets, they included the Multi-Unit Girders. The largest cost \$10, the same as a #5, and from the illustrations it seems not to have nearly as many wheels and gears, nor the electric motor which was included in Sets 4-6.

Later still a 'Cadet' outfit was added and although no prices are given, it is shown before the #1. It seems not to have included any wheels, only the 2 1/2"Ø 'Discs', but its Booklet contained 65 models, against 41 in the #1 Instruction Book.



CADET OUTFIT

At this point the linking sets were no longer listed.

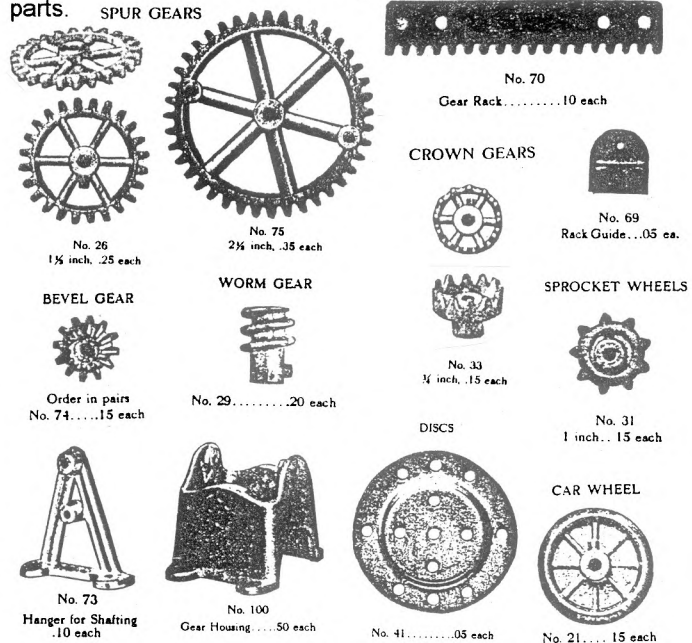
In an article in the February 1993 *Collecting Toys*, Joseph E. Freed mentioned that by 1915 sets were also being sold as 'EMPIRE BUILDERS'.

The PARTS They are like MECCANO unless otherwise stated. MECCANO PNs are preceded by 'M'. The parts asterisked are illustrated.

- The Strips, called Beams, (2,3,4,5,6,7,9,11,15,19,25h) have large radius ends. There are also Bent Beams (1*5*1 & 1*7*1 DAS), Corner Beams (M12a), Twist Beams (a 3h Strip with one end twisted through 90°, Brackets (M12), Hangers (M45), and two parts, the Car Wheel Bracket and Clevis, that both look rather like M12b from their blurry illustrations but perhaps the Clevis is like a M102.
- 11 & 25h A/Gs with square corners.
- Plates with rounded corners, all fully perforated: basically 4*9, 5*5, & 6*11h, but also formed with one flange to give 1*3*9, 2*2*9, 1*8*4h; 1*4*5h; and 1*5*11, 3*3*11, 1*10*6h. Pairs of the Flanged Plates are shown bolted together to form Double Flanged Plates of different width, and also, for the 1*3*9, Flanged Sector Plates.
- A range of silvery coloured Pulleys, Gears and Wheels die-cast from 'white brass' with integral bosses. The Pulleys

are 1/2" (no boss), 1" & 1 1/2" Ø, and all but the 1/2" have 6 spokes.

• The Spur Gears are 1/2, 3/4, 1, 1 1/2", 2 1/2"*Ø, and are coarse pitched (16 DP) with 8,12,16,24,40 teeth: all but the 2 smallest have 6 spokes. To go with these is a Gear Rack*, shown with 18 teeth and about 3 1/2" long, and a Rack Guide* but its exact form isn't clear. Then there are two 6-spoke Crown Gears (3/4" with 12 teeth*, & 1 5/8" with 24); a Worm* which scales at 1" o/a, with a 1/2" long boss; and a 12t Bevel*, about 3/4"Ø. Finally a pair of Sprockets: 1", 9t*, and 2", 18t, 6-spoked. The Chain is said to be made of steel but looks brass coloured in a photo of some STRUCTO parts.



• The cast Wheels are a 8h Spider (Bush) Wheel, solid with a flat face; an 8-spoked Wagon Wheel which looks to be a little less than 1 1/2"Ø; and a Car (Flanged) Wheel* of about the same size, again with 8 spokes but with webs between them, ie a disc with the spokes superimposed.

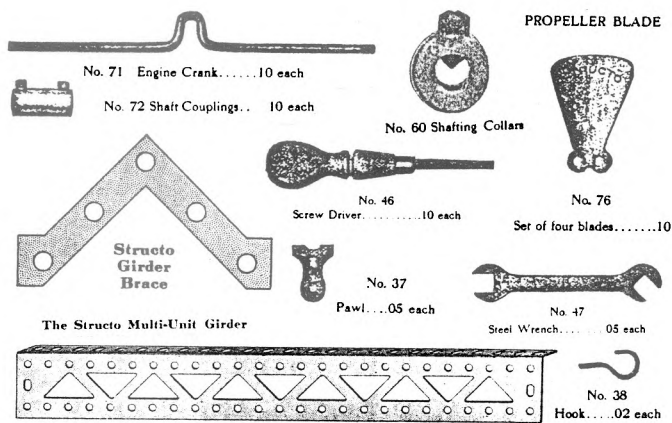
• The other circular part is a pressed 2 1/2" Disc* with the centre deeply recessed (it can be seen in the Cadet Outfit) - the 4 holes in the centre allow the Spider Wheel to be bolted on, and the 8 outer ones give 60° & 90° spacing.

• Two other parts that look as if they are castings are a Hanger for Shafting* (Shafting Standard), with upper and lower bearings an inch apart, and a Gear Housing* in which a Worm shaft can be housed in any of 4 sets of bearings and thus engage with the 8, 12, 16 or 24 tooth Gears.

• Shafts (1 1/2"-11 1/2") are grooved to allow the pointed Set Screw to engage in them and this 'eliminates any possibility of slippage'. The two Crank Handles (Crank Shafts) are also thus grooved but it's not clear whether the Crankshaft* (Engine Crank) is.

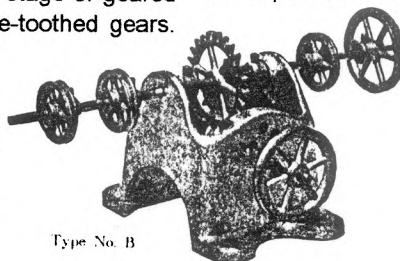
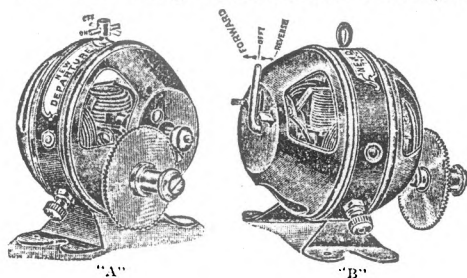
• Other parts include a Propeller Blade* which is shown with the name STRUCTO on it; a Shaft Coupling* with 2 tapped holes and no cross bores; a Collar*; a Flexible Shaft Coupling which looks like a M175 but the length isn't shown - it was included in Sets 2-6; a flat Pawl* with turned up ends at each side; a Coiled (Tension) Spring; Cord; a wire Hook*; a double-ended flat Wrench*; and a wooden-handled Screw Driver*.

• There were 3 parts without PNs, the Multi-Unit Girder*, already mentioned, the Girder Brace*, and the Windmill Card. The latter was a windmill sail and was shown on a model in the brochure though not in the Illustrated Parts. It looks to measure about 2*4" and has a decorative border with the name STRUCTO printed inside it.

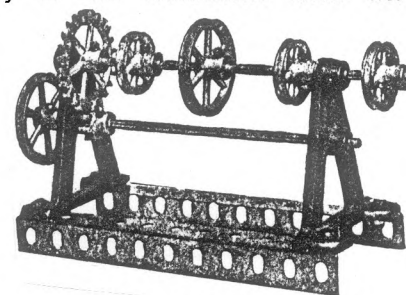


• MCS says that the parts were black and tin plated - I don't know if any of them were originally black or whether they were tinned parts that have darkened with age. My Girders have turned a dark grey. The pitch of the holes is 12.7mm, and MCS gives the holes as 4.2mm Ø, but the ones in my parts are 4.3mm in the Beam, and 4.4 in the Girders. Probably the Shafts are 5/32", and probably the N&B are 8-32, but both need confirming. Likewise the Set Screws, which may be 6-32, and whether bosses, and the Collar and Coupling, are single or double tapped.

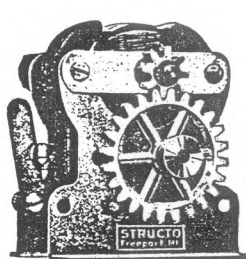
ACCESSORIES The early brochure shows 2 electric motors*, Types A & B, both fitted with one stage of geared reduction using non-standard relatively fine-toothed gears.



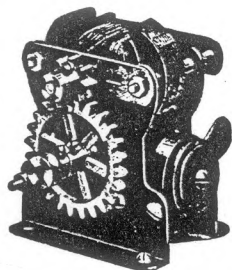
WORM SPEED REDUCER



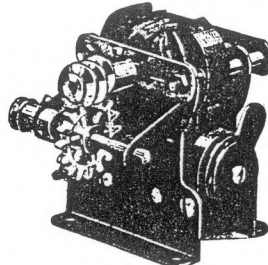
GEARED SPEED REDUCER, Type No. A



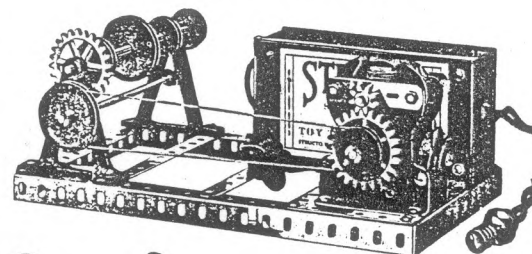
Structo Geared Electric Motor No. 1



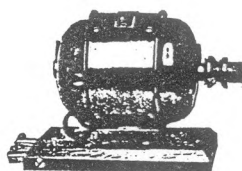
Structo Geared Electric Motor No. 2



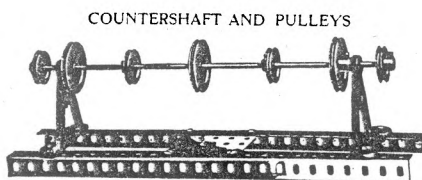
Structo Geared Electric Motor No. 3



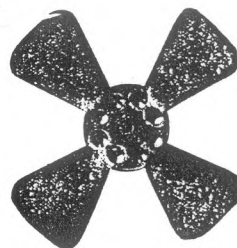
Structo Power Plant



Universal Current Motor



COUNTERSHAFT AND PULLEYS



Structo Fan or Propeller Wheel

This wheel is made up of propeller blades bolted on spider wheel, therefore may be used on armature shaft of Structo Motors for fan.
 Price complete.....25c
 Blades per set.....10c

The words on the label on top are 'New Departure'. They ran from a No.5A Transformer or 1 or 2 dry cells. Type B was reversible and was the motor in Sets 4-6. The Leaflet with the brochure advertised a bargain pack of 22 Gears, Shafts, Chain, Sprockets, etc at \$1.85, about 2/3 the normal price, and aimed at 'any boy that wants to build machinery with his steel beams'.

Later different motors* are shown. Nos. 1, 2 & 3 were 6v and standard Gears were used. The No.2 was the one in Sets 4-6 and is said to be similar to the No.1 but with a reverse instead of an On/Off switch, reinforced bearings, and gauze brushes in tubular holders. The No.3 is like the No.2 but was 'also provided with worm speed reducer'. The Brackets for the Worm shaft were also available separately. A 100-120v Universal motor* was listed as well, size 3 3/4x5" o/a with a wood base 2 1/2x4 1/2".

Several built-up units* were advertised and are shown below. All are made from standard parts except the base of the Power Plant. The latter is fitted with the No.1 transformer and the No.2 motor.

ACKNOWLEDGEMENTS As well as Ron Michalowski, thanks are due to Kendrick Bisset, Don Redmond and Richard Symonds for material they have sent, and to the Editor of the *Southern California Newsletter* for permission to reproduce many of the illustrations used here.

Two New Books Kendrick Bisset wrote of a recently published book, *Those Sensational Sears Sets* by Klon Smith, and I've since obtained a copy. It consists of some 120 about A4 size pages, ring-bound, with full page copies of Sears, Roebuck catalogue pages from 1913 to 1962 on over half of them, and interesting explanatory comments on the facing pages. All the main changes to ERECTOR are shown, plus incidentally some ads for MECCANO, BILT-E-Z, BUILD-O, etc. The author has added helpful notes, and there's an index. The copies are from microfilm so the quality is useable but not wonderful. The book is available from the author at 315 Beech St., Liberal, KS 67901, U.S.A. for \$23.

The second is *Discovering Late Erector 1963 - 1988* by

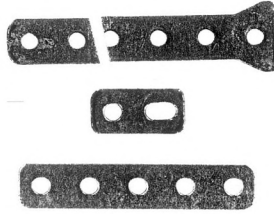
Marshall McKusick. This is a comprehensive account of the last phases of ERECTOR with 230 pages, again about A4 size & ring bound, plus some fold out model plans. It's well written & well produced, with excellent illustrations and better photos than is usual for this type of publication. Based on a hasty read through there's a lot of detail on parts, sets, motors, set contents, dates, illustrations of key models, commercial history, marketing ploys, etc. Bad points - at a glance not a lot on the evolution of manuals, & no index. There's also a certain amount on what sets might be worth in 1997 but it's easy to ignore. It costs \$40 from the author at 820 Park Road, Iowa City, Iowa 52246, U.S.A. Apart from its value as a reference this book inspired me to make a model from ERECTOR parts I've had since 1973.

ITEMS FROM LETTERS

1. Roger Baker confirmed that the Patent date on his **U.S. ©1913 MECCANO Manual** is 16TH JANUARY 1906 (see 13/346).

2. From Don Redmond. Referring to **MEK-STRUCT** (OSN 14/392), there is another series of 9 sets (bubble packed on card), each making a model smaller than the 3201-8 outfits. All are vehicles except #32301, a Mini Plane, and 32302, a Mini Helicopter. All have 5-digit numbers and names prefixed with Mini: 323903, Fire Engine; -4, Fork Lift; 5, Racer; 6, Buggy; 7, Loader; 8, Off-roader; 9, Car. The Fire Engine has 89 parts, in the standard colours rather than the red used for the Emergency Vehicles (3213-5).

• On **HANDY CRAFT**, it's not clear in the MCS illustrations that the 15h Strip has both ends splayed, whereas the 11h, as can be seen, is so shaped at only one end. All the Strips and the Fishplate have corners of very small radius (about 3mm), and this gives the DAS a decidedly odd appearance. The 3*3h triangular 'Trunion' is similar to the VOGUE one but again has small radius corners. [Don kindly sent a Fishplate and 2 Strips, a 5h and an 11h. They are nickel plated, 12.1mm wide, and their holes are 4.4mm Ø, against 4.2mm given in MCS.]



3. On **CONSTRUCTION TRUCK** (14/373), Richard Symonds passed on some more details that he'd had from Don Blakeborough. The Flanged Plate in Don's set had a normal centre hole and not the enlarged one shown in OSN 14, the Axles are 80mm overall with 10mm of thread at each end, and the length and width of the Triangular Plate are both 35mm. The latter is red like the Flanged Plate, and the other parts are blue, except the black Spanner and nickel Screwdriver. The 5mm Ø RH Bolts are 5mm u/h, and the hex Nuts are 6mm A/F.

Richard also sent a photo of what appears to be a **BILD-A-SET** manual cover. The wording on it is in English, including 'Made in U.S.A.'. And there's what may be a copyright date but I can't read it. The models



shown are much like those in MCS with holes that look as if they might be at least an inch apart. It is stated that no tools are needed, and there's a sentence in small print that I think reads '170 pieces complete with wooden pegs and dowels'. The latter can be seen in the models and it's possible that all the parts are wooden and the pegs and dowels are a push fit in them.

Another item was the March issue of another U.S. advertising paper called **Toy Trader**, rather similar to *Toy Shop* mentioned in 13/360. The main difference is that it doesn't contain any classified ads, all were from dealers, and I didn't, in a quick run through, spot any for OS in its 108 pages.

4. Points from David Hobson. • The London Toy Co., 0181 864 2186, say that they stock **STEEL TEC** sets, but have no lists. • **Eisenzeit** (ISBN 3-921590-39-6), the book reviewed in 14/377, can be obtained from the UK European

Book Shop, German Dept., tel: 0171 7345259. It costs about £37 plus UK postage, and delivery takes about 3 weeks. [Richard Symonds obtained a copy from Canada by writing directly to the bookstore mentioned in EZ - W. Tümmels Buchdruckerie und Verlag GmbH, Gundelfinger Straße 20, 90451 Nürnberg. Tel: (0911) 64197-0, Fax: (0911) 6419750. The total cost was around £34 including £4 postage and tax. That would have been by surface mail I expect. Richard added "Sure is a winner of a book".]

• When starting to restore some (Belgian) **TECNIC** parts, the paint on a proportion of them was in a particularly poor state and it was found that they had been stamped from sheet zinc instead of the usual mild steel. The Nuts too were solid zinc, 10mm square by 2½mm thick.

5. On **TRIX**, Peter Page asks what surface treatment was given to UK parts, and wonders if it could have been cyanide case hardening, which he adds, was a very cheap mass production method.

6. Some notes from Jeannot Buteux. • **CONSTRUCT-ORAMA (CO')** have discovered the following 'new' systems: **MÉCAMOTEUR**, **MULTIMÉCOS**, **INGÉNIO** [2], **BYG OG LES**, **CONSTRUCTA**, **STRUCTEX**, **KOSTRUKTØR**, **MÉTALLO** [1], **MÉTALLO** [2], **INGÉNIOR**, **NAVIGO**, **DEN LILLE ELEKTROINGENIØR**, **LEONARDO**, **SCHUMANN**, **MATADOR-ELEKTRO**, **PRIMEX**, **TEKNO-ELEKTRO**, **METALLO-MOTOR**, **METALLO-BILER**, **ACQUAVIVA**, **APENES**, **TECNICAVIA**, **LE MÉCANO**, **MÉCANAUTO**, **MASSTER KOWIES** (Polish), **CONSTRUCTOR** (Russian, 4 different types), **MAL'YCH** (Russia), **ARTIMÉTAL**, **MULTI-CONSTRUCTIONS**, **CONSTRUITOUT**, **FALCO** [2] (alias **ASSEMBLO** - this sounds like the **FALCO** mentioned in 5/83 but if so what is **FALCO** [1]?), **FALCO ELET** (alias the 1933 German **ELECTRIC**), **MEC-AÉRO**.

• Of these 3 seem of particular interest, although as yet the only information on them comes from documents - manuals, brochures, etc. **STRUCTEX** is Belgian and has about 112 different parts including a Ball Bearing and 11 A/Gs. The parts are apparently aluminium, like **STOKYS**. **LEONARDO** (Italian, 1947) is generally like **MECCANO** but with some individual parts. Again there is a good range of pieces, and the 'Epsilon' Set contains 1691 parts plus 1333 N/B. Another good size system is **MULTIMÉCOS**, c1950, and the parts include Curved Rods and many pieces with tapped holes.

• The existence of **MULTIMOTORE** has also been confirmed. It was an Italian version of **MULTIMOTEUR** (see 12/304 & 13/360), made under license by G.E.M.M.A. around 1947. It is likely that only 12 Outfits were available, from 3 of the 'groupes'. • Also confirmation that **EFEL** (the version made by Gédé, see 5/91) was produced with coloured parts: red A/Gs, green Strips, and blue Triangles.

• Some years ago CO' discovered a 1921 **ERECTOR** Manual in Dutch.

• On **WENEBRIK** (13/334), Jeannot wrote that he used to have a French Set No.5 with a Manual in French which was different to the British version.

• In answer to Don Redmond (OSN 13/337), the name **ÉCÉPÉ** corresponds to the pronunciation in French of the initials E.C.P., which stand for the École Centrale de Paris, the school for engineers at which Gustave Eiffel was a student in 1852/53. Another thing, a large steel Plate, 19*28h with 2 flanges, and painted black, formed the bottom of **ÉCÉPÉ** boxes.

• CO' have a **TECHMASTER #50 Set** and extra/different details from those in 13/391 are: • The con-

tainer is 80mm Ø * 205mm high. • There are 110 parts in the Set, of 24 different types, including 14x8mm, 6x18mm, and 2x26mm RH Bolts, and 14 small crossheaded Countersunk Bolts. • The steel parts are nickel plated, the Pulley is aluminium, the Wheels may be Bakelite, and the Cable is white string. • The Handle is 3.00mm Ø; the holes in the Channels, Wheels, and Angles and Corner Plates, are 3.90, 3.50, 4.70mm diameter respectively.

• **LESAKSSAMLARMARKNAD**

(13/360) is not the name of a set, it means Toy Fair in Swedish. **Two unknown systems** were seen there, as well as the aluminium one mentioned in OSN 13; one resembled MÄRKLIN and the other STABIL.

• On **TEKNO** (13/360), there is also **TEKNO-ELECTRO**, and its Manual is almost identical to the equivalent **TRIX** one.

• **MAKKO** (13/360) should have been **MAYCO**. [Sorry]

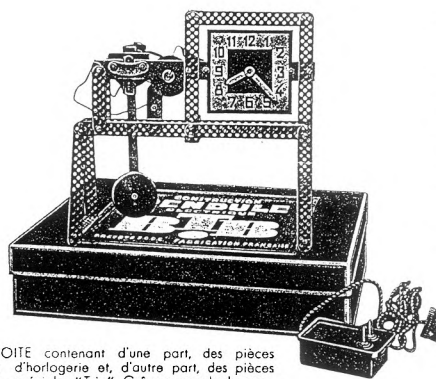
• **AIMANTO** (13/361) is not a constructional toy, it's the brand name of various games in which magnetised pieces are moved about (aimant = magnet).

• For **AJUSTO** in 12/315, the wooden parts in a known Set are red in colour. The 'UNIS FRANCE' isn't the sign of the manufacturer but was a mark of distinction awarded by a toy maker's trade association or the like, in the period 1916 to perhaps 1940. The criteria for such awards aren't known. Also the Brevet No. mentioned was probably not a Patent No. but more likely the Registration No. with a trade body.

• A French system **MÉTALLU** is shown in MCS, the name coming from an advert which is reproduced there. In fact it is a misprint and the real name is **MÉTALU - CO'** have several Sets with Manuals. Similarly an **ÉRECTOR** Manual is known, another error.

• On **TRIX A/Gs** (13/361), both aluminium and brass plated steel ones were included in French sets.

• And while on **TRIX**, Jeannot sent a copy of a leaflet for



B OITÉ contenant d'une part, des pièces d'horlogerie et, d'autre part, des pièces spéciales "Trix". Grâce au mode de mon-

the French **BTB PENDULE ÉLECTRIQUE** (Electric Pendulum Clock). It was a kit made up of standard **TRIX** pieces and special precision clock parts, and the finished clock 'worked very well and could be regulated'. The address given is 35 Boulevard Richard-Lenoir, Paris XI^{me}, and the price, fr.59, included the necessary battery, or for another fr.15.50 a transformer was available.

7. John Wapshott wrote that he has 2 **ARKIRECTO** Pulleys (W3), see 2/21, with Collets that tighten onto a 2.6mm Rod that was with them, and that a 3.25mm drill goes through their bore (without the Collet fitted). The 3 that I measured for my Database will not tighten onto a Rod of that size, but do tighten on the 3.05mm Rods that came with them (although they were all in a mixed lot), and their bores are typically about 3.07mm. The bore of the solid end of John's Collets is 3.0mm, while mine are 3.1. All the Pulley are stamped **ARKIRECTO**. Were there two standards or have some of the parts been 'got at'?

TRUNNIONS GALORE Trunnions are often a good way of identifying an unknown lot of parts, or at least narrowing down the possibilities. But it's one thing to have a Trunnion in your hand and another to know which system it comes from. Don Blakeborough and Don Redmond have been working on this and Don B. recently sent me the answer for all known Trunnions and similar Triangular Plates. There's a drawing of each different design - in fact to save space only the left hand side is shown - and a list of all the systems that use each type. In all there are over 130, of some 70 different designs, with notes on material and colour where possible

I find it a great help and with Don's agreement I've arranged it all on a double sided A3 sheet, and I can supply copies at £0.40 each plus postage.

EXTRA MCS SHEETS The Sheets listed opposite are available at 15p per Sheet plus postage. That makes £1.20 + post for all 8 Sheets. There aren't many MCS Amendments this time so they will be included in List No.4 to be issued next April.

BILDO: X1.7 [1 Sheet]
 KINCO ENGINEER: X1.7 [1 Sheet]
 MECHANIX [1]: X1.3a/5a/6,4 [1 Sheet]
 MECHANIX [2]: X1.1,4/6,4a/6a,5 [2 Sheets]
 STRUKTIRON: X1.3/6,3a/6a,7 [2 Sheets]
 TANSAD: X1.1,7 [1 Sheet]

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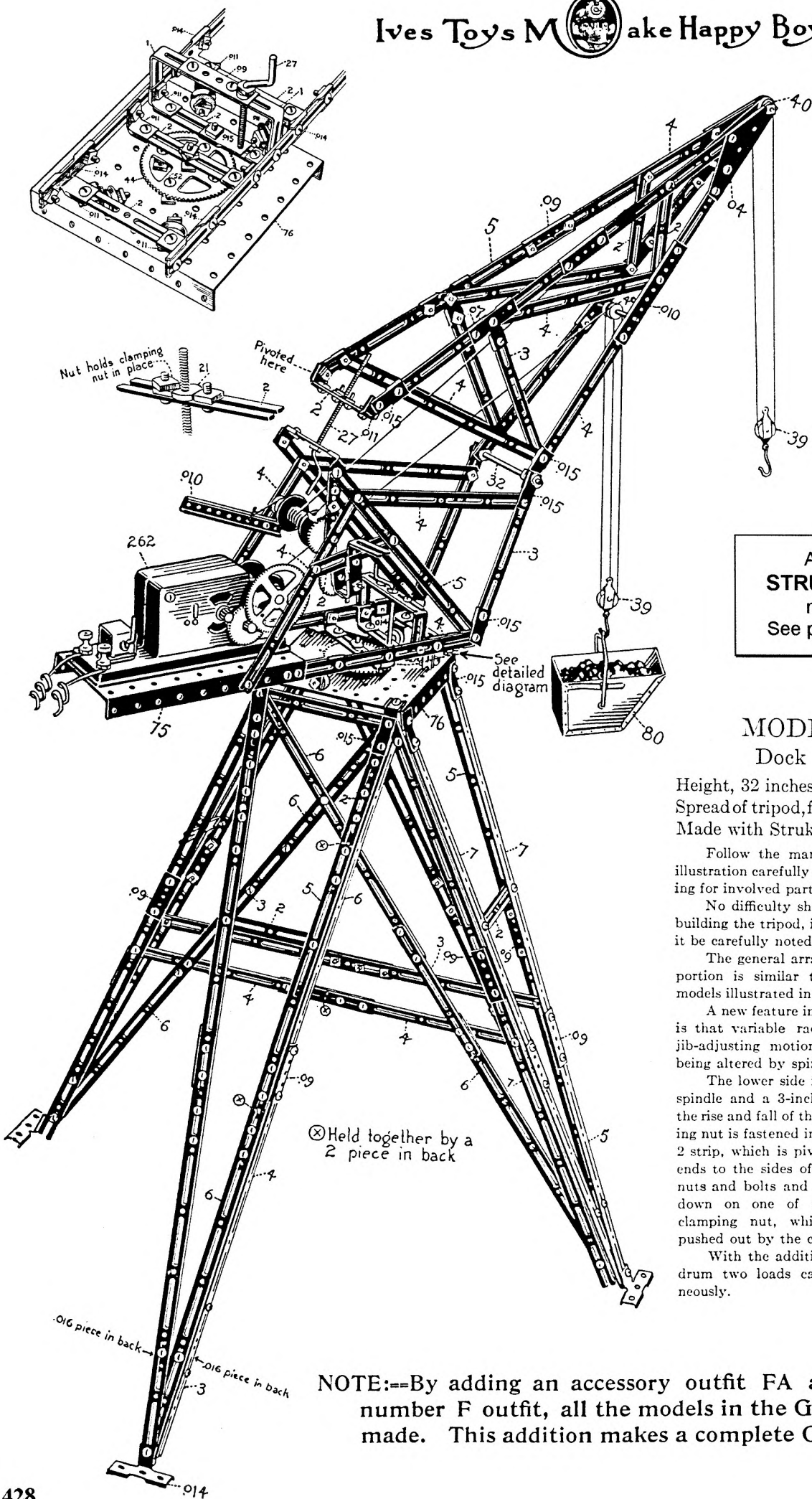
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SMALL ADS Up to about 150 words free for each subscriber in each Issue; above that by arrangement. Insertion guaranteed in OSN 16 if ads reach the Editor by the end of January 1997.

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A 1915
STRUKTIRON
 model.
 See pp398-400.

MODEL F-5.
 Dock Crane.

Height, 32 inches.
 Spread of tripod, front legs, 19 inches.
 Made with Struktiron Outfit F.

Follow the marginal numbers in the illustration carefully and the diagram drawing for involved parts.

No difficulty should be experienced in building the tripod, if the pieces composing it be carefully noted.

The general arrangement of the upper portion is similar to some of the other models illustrated in the catalog.

A new feature introduced in this model is that variable racking is obtained by jib-adjusting motion, the rise of the jib being altered by spindle gear.

The lower side is pivoted on a No. 32 spindle and a 3-inch crank handle governs the rise and fall of the jib. A No. 21 clamping nut is fastened in the middle of the No. 2 strip, which is pivotally attached at the ends to the sides of the jib—between two nuts and bolts and a second nut is run down on one of the bolts on to the clamping nut, which prevents it being pushed out by the crank handle.

With the addition of another hoisting drum two loads can be lifted simultaneously.

⊗ Held together by a 2 piece in back

.016 piece in back
 .016 piece in back

NOTE:—By adding an accessory outfit FA at \$2.50 to a number F outfit, all the models in the G series can be made. This addition makes a complete G set.