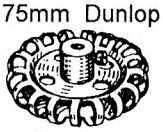
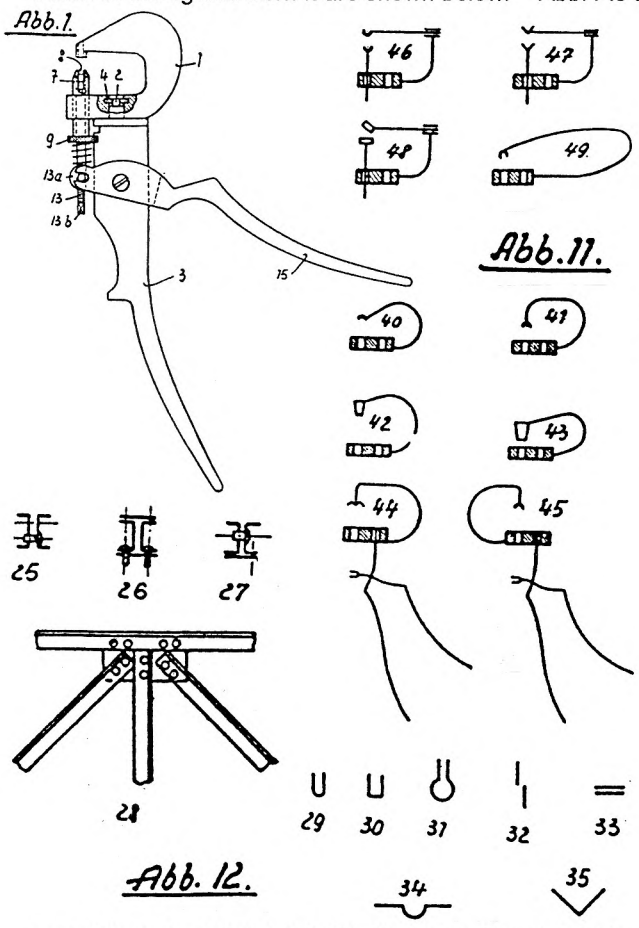
GERMAN DIY SYSTEMS **MECHANIKUS** from Heller is mentioned by name in Bauklötze Staunen (BS) and is no doubt the same as HELLER-MECHANICUS, for which details in French are given in MCS. The set mentioned in BS is No.1941 and that is one of the sets listed in MCS. The BS outfit is said to be from around 1933. The plier type tool used is described in MCS, it could punch holes in the 12x.5mm steel strip provided, shear and bend it, and to some extent curve it. Rod could also be sheared and bent. The parts were held together with N&B and a fair range of accessories was available including Pulleys, Discs, formed Circular Strips, all in a range of sizes, together with Gears, Sprockets, Couplings, Screwed Rod, and 75mm Dunlop Tyres. The gears (opposite) look like the early STABIL ones, with the teeth made by joining two discs which each have radial 'spikes' formed into the outside shape of half a tooth.



Roue dentée No. 16
12 18 24 36 dents

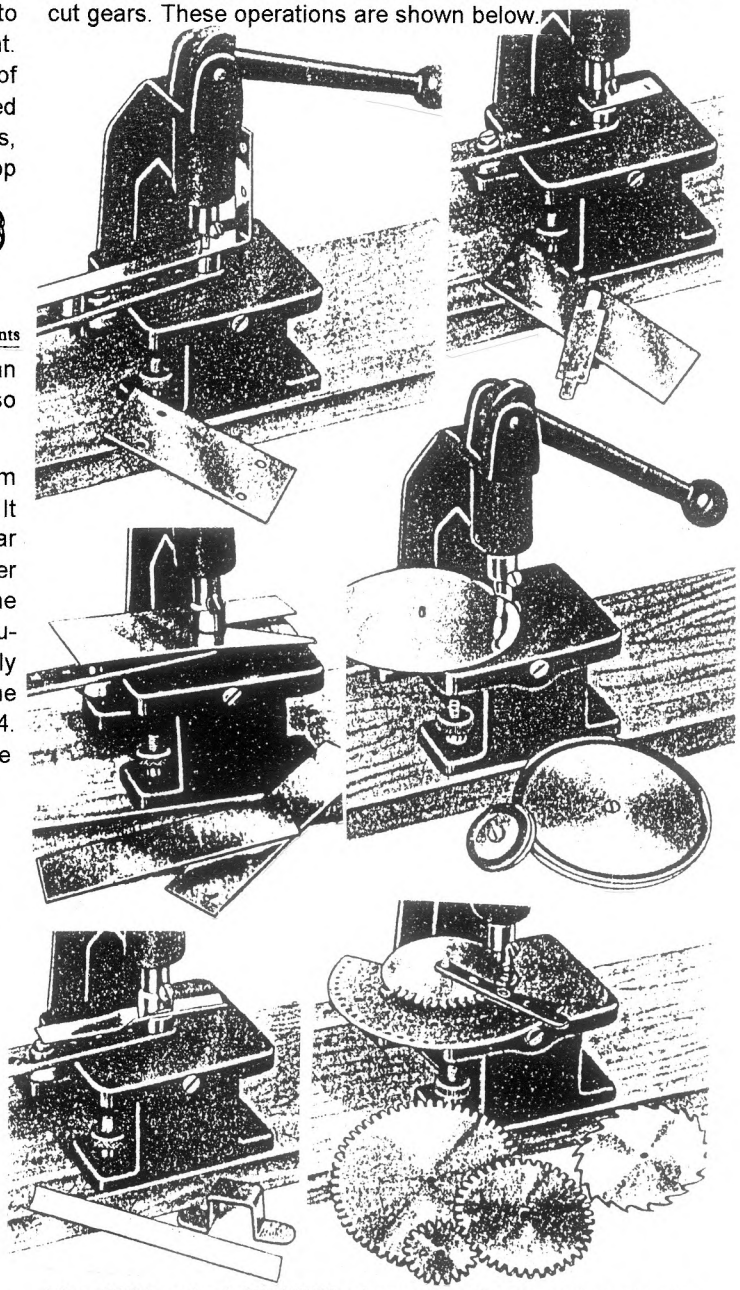
The rest of this account is taken from BS or from German patents that Toby Haffter kindly send. Grateful thanks also to Mrs Al Sternagle who translated the German text.

As well as MECHANIKUS, Heller also made a system called **MECO** which had a much more sophisticated tool. It is referred to as the 'Constructor' tool and is said to be near (neben) the 'Mechanikus' tool on the market, but whether 'near' means in time or in general type I don't know. The MECO tool has interchangeable heads and could accurately cut, punch, rivet, bend and form material. The only details of it are from the patent (Nr.618764), which is in the name of the Heller brothers and dates from January 1934. Some of the figures from it are shown below: Abb.1 is the



complete tool; Abb.11 (40-49) illustrates the various forms of head, and Abb.12 (25-35) shows rivetted joints and formed shapes using some of the different heads in Abb.11.

The other system in BS is **MEWEKA**. The name comes from MEtall-WErk-KAsten (Metalwork Set) and it was patented in 1932 by Julius Frommherz of Ettlingen, Baden, after it is said, he had made it for his nephews. However it did not come on the market until 1953, and in 1954 it was a success at the Nürnberg Toy Fair. A hand press is used and carries various tools to punch holes and slits, cut thin metal sheet, form bevelled edges, form right angles, and cut gears. These operations are shown below.



The 1932 patent (621577) shows the Press and a simple device for locating a gearwheel while the next tooth was being pressed out (below). However in the illustration above an indexing plate is used which was patented (Nr.922461) by Frommherz in 1953. MEWEKA was actually made by a firm called Reichmann & Co. of Wuppertal-Barmen and in 1954 Frommherz made an impressive 4m long model of the Wuppertaler overhead railway, which at the time attracted much attention from the local press.

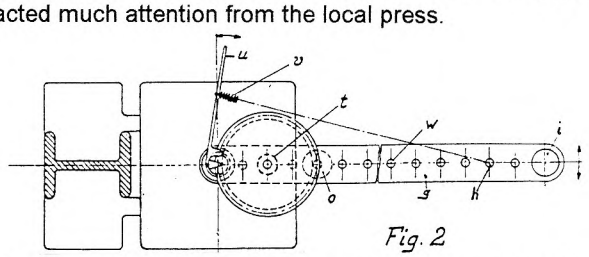


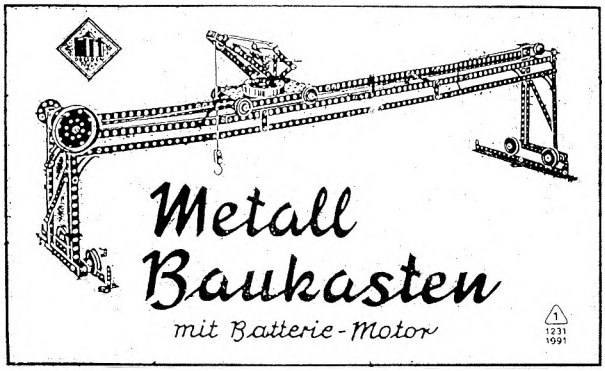
Fig. 2

This is all the information to hand on these systems and MCS Sheets will not be issued yet in case further details become available.

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.

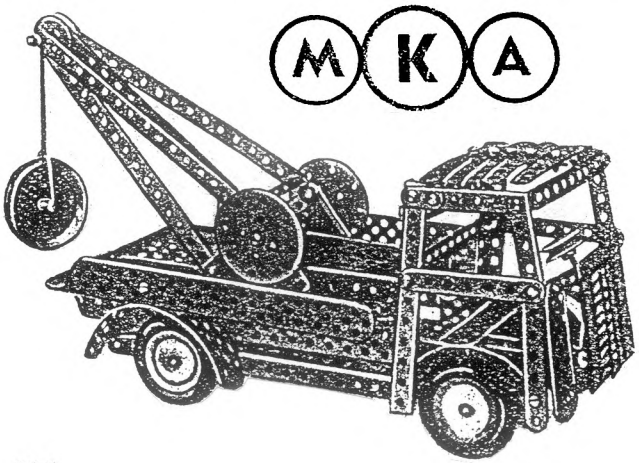


METALLO-TRIGON This 'geometrical' system was discussed in 5/93. EZ gives the period as 1913 to c1926 and lists the firms who made it during that time: Metallo-Trigon GmbH, Offenbach; from 1916, Stanzwerke GmbH, Eisenach; from 1919, Stanzwerke u. Schloßfabriken GmbH, Bad Liebenstein and Sachsendorf bei 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.

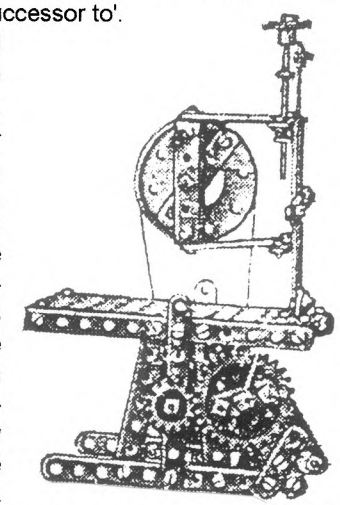
M K A Probably from East Germany in the 1950s, this system had about 40 parts, all plain aluminium except for steel Axles, and included both TRIX-style and MECCANO-style Strips. The hole pitch at 11.2mm was larger than TRIX but smaller than MECCANO, and the holes were 4.1 and 4.3mm respectively. Mystery 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 nutted onto 50 and 90mm Threaded Rods; N&B.

MEWEKA by Jacques Pitrat

Fig.1

MEWEKA (from Metall-Werk-Kasten: box for working with metal) is a German DIY system. OSN 12/321 indicates that it was patented in 1932 by Julius Frommerherz from Ettingen, Baden, but that production began only in 1953, more than twenty years later. The first edition of the manual mentions that it was made by Reichmann & Co., Maschinenfabrik, of Wuppertal-Barmen, Handelstr. 66; the patentee's name did not appear in this edition. However, in a later manual, Reichmann's name & address were replaced by: Julius Frommerherz, Meweka Kassel-Wilh., Weissensteinstrasse 50 (Wilh. stands for Wilhelmshöhe).

Eisenzeit has a paragraph about this system on p.66 in & there is another on p.156 in Baükasten, with a photo of the set and an indication of c1960 as the end of the production. OSN includes six photos of the Press, taken from the manual, showing it carrying out six of the operations described later.

A DIY system can manufacture parts from raw material; usually it can produce only some of the parts: for instance, FORGEACIER & JUNEERO can drill, bend, and cut Strips, but one must buy Wheels, Gears, Cranks, Axle Rods, Nuts, Bolts, and so on. Here, MEWEKA starts from aluminium Plates & Strips; axles, wheels, pulleys, gears, strips, girders, & various components are made from these Plates. In addition to these one has only to add Nuts, Bolts, Collars, and Tyres. Moreover, the importance of the N&B is reduced: as the models are not intended to be taken apart in order to reuse their parts, N&B are not used for assembling them. For this tabs are formed and inserted through slots in another part, then bent over. One can even have a part which is a double-ended tab (Fig.9, called Klammern) to join two stacked pieces. Several models use no Bolts at all, while the model with the highest number of Bolts needs only nine of them. Bolts are often used as stub axles. The ultimate goal of the inventor seems to be that no specialized part will be included in this system. To show how far he could go, the system has no motor but one of the models is a working Electric Motor (Fig.11)!

THE SETS

All but one set seen are in a wooden box similar to mine. The latter, Fig.2 (with the Press on top of it) measures 33.7*17.7* 11.5cm. No label is on the top of my box, but later sets have one (Fig.1, but in some the blue background behind the Press is black). Inside the box (Fig.3), several Tools are attached to a wooden board inside the lid (Fig.3a), and the aluminum Plates are under it.

Fig.2a

Fig.2

The Dies etc are kept in the bottom of the box (Fig.3b); along with the Tyres & Strips, while the Collars, Nuts, & Bolts are in a box next to the Dies with three compartments and a sliding lid.

The exception (Fig.2a) is a set in a cardboard box which is deeper but narrower in plan, just wide enough to take the board. It has a separate, shallow lid with the Fig.1 label on it.

As far as can be seen the contents of all sets is the same and the only main differences are the Press's colour, and the wording cast into its body. These are detailed in the next section.

THE PARTS

These are shown in Figs.3 & 4. The Press, Dies, and some other parts are in the bottom of the box; the other parts are held on a Board in the lid.

Parts in the Bottom of the Box.

The Press is shown in Fig.5. In my set it has just GERMANY on the bottom of the base's front face. Of the other black Presses the one in the 'cardboard' set has MEWEKA on the side of the body, and in the other sets it is MEWEKA PATENT MADE IN GERMANY. This last form continued on later Presses which are painted green.

There are two diagonally opposite mounting holes in the base and the wooden board in the lid has holes in it which would allow the Press to be attached to it using the Threaded Rods & large circular Nuts which hold the Tools. But all the pictures in the manual show the Press fixed to a much larger wooden support.

The Press's arm can be moved downwards to the right or the left and the cam at its inner end varies the stroke of the die holder depending on which way it is moved.

A Set Screw holds an Upper Die in a 6mm diameter bore in the Press' ram, and the mating Lower Die sits in a 12mm diameter hole in the table, held by the Set Screw which can be seen on the table's front edge.

The Dies 16 Dies (8 pairs) for the Press, in 4 rows, push into a sturdy Card (Fig.4, with their PNs inset). For each pair the Upper Die is just below its Lower associate, and each pair has consecutive numbers.

Other Parts: **Workpiece Holders #17 & 18** These are under the 16 Dies and they are used to position a workpiece for the required operation. #17's body is 6mm diameter, 7.5mm long, with a spigot 4mm diameter, 3mm long on its base, and a 6mm long, 4mm diameter extension on top. #18 has a 12mm body with a similar spigot and has lips 12.5mm apart on its top face. The spigots push into the Card, or when in use, into, say, a hole in the Strip S described later. #17 is used to hold, for example, the central hole of a plate which will be made into a disc, and #18 to hold in place a Strip which is to be formed. **Strip B, Bracket C with Threaded Pin**. These are above the Dies in Fig.4. B has three 3mm holes at 12.5mm pitch, and at one end a 4mm hole at 20mm pitch from the outer 3mm hole. Bracket C has a 3mm threaded hole and the Threaded Pin screws into it. The Pin's end is turned down to 2mm diameter so that it can engage the Indexing Plate described below. **Tools**. Two double-ended Spanners (on the Card) and a Pair of Pliers for bending the tabs (largely hidden under the Press & the Card in Fig.3b; a similar Pair is inset in Fig.5).

Parts on the Board in the Box Lid (Fig.3a).

The Indexing Plate, D. Semi-circular in shape, it has three semi-circles of 11, 21, and 31 holes, diameter 2mm. Also a 6mm hole at the centre, and three 4mm diameter radial holes. As explained later it is used in cutting gears.

Fig.3a

Fig.3b

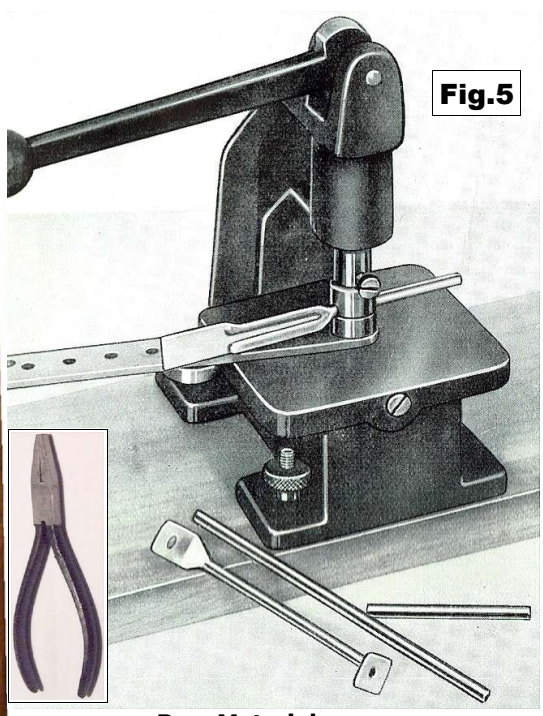


Fig.5

A Strip S sitting on top of the Indexing Plate. It is 179.5mm long and 16mm wide. Two holes, 12mm in diameter, called O and Z, are at the ends; 12 holes, diameter 4 mm, are between O and Z. Their pitch is 12.5mm, except 13.75mm between one end hole and Z. It is often used on the table to locate the workpiece relative to the Dies. As the diameter of both O and Z is 12mm, the Strip can be put on the table with either hole on the body of the Lower Die (see Fig.5). The Instructions say which hole is to be used depending on which part is to be made. Then as both #17 and 18 have a 4mm spigot, either may be inserted into one of S's small holes and carry any suitable workpiece. For working on a circular piece, its centre hole is usually positioned on Strip S using Part 17; therefore, the tool will work at a fixed and known distance from its centre.

15	13	11	9
16	14	12	10
7	5	3	1
8	6	4	2
	17	18	

Hand Tools. A File for deburring, a Screwdriver, and a hook-shaped Cutting Tool (called Reißhaken in the manual).

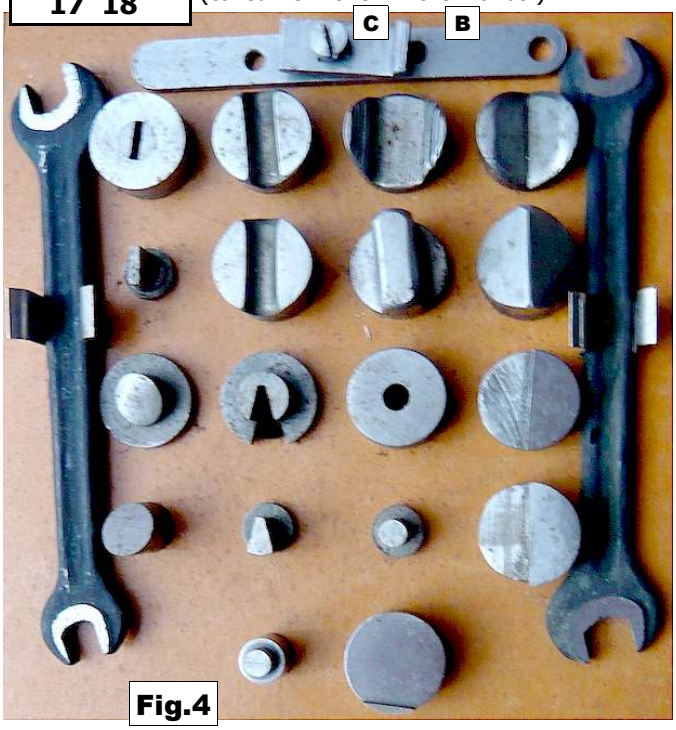


Fig.4

Raw Materials.

All the parts used are made from aluminum. The sizes are given in millimeters in the following order: length, width, & thickness. Thickness is very important, and it is always indicated with the description of the parts; there are four possible values: 0.7, 1, 1.5, and 2mm.

Plates, one of each kind: 250*150*0.7, 250*80*0.7, 250*150*1, 250*80*1, 250*80*2.

Strips, ten for each of two widths: 150*10.5*1, 150*12*1; the first size is useful for manufacturing axles.

A few items are not included in the set: they include the wire for the Electric Motor, and its insulating washers (to be made with paper).

My set is almost complete, only one 10.5mm wide strip is missing. Sometimes, I wonder if the first owner tried to manufacture an axle; given the difficulty of making it, he stopped using the set, which remained in near mint condition.

Parts that cannot be Made.

Collars (Stellringe), steel, 8.5mm diameter x 4mm, with a M3 Pan headed Set Screw (20 off).

N&B are steel, M3.5. Bolts: length 8mm (30), 12mm (20), 15 mm (10). Hexagonal Nuts (60).

Tyres, 42mm to fit 28mm pulleys (6); in later sets, two of these were replaced by larger 75mm tyres for 53mmm pulleys.

We have already seen that this system does not generally use Nuts & Bolts for assembling parts; therefore, models use few of them. Naturally, the Collars are used as ordinary Collars, but also instead of bosses for circular parts. Ordinary bosses cannot be made by the system; this important issue will be discussed further.

MAKING THE PARTS FOR MODELS

With this Press it is impossible to work with a large aluminum plate. One must first cut a rectangular plate a little larger than the piece to be manufactured. To do that, the user takes the Cutting Tool, and guided by a rule, makes as many strokes with it as needed to cut right through.

Now, we will consider the eight operations that can be made with the eight pairs of tools; I indicate their numbers between parentheses.

1. To press out a hole (3-4). Its diameter is 4 mm, so that it is possible to insert axles and Bolts. It also allows positioning the part on Strip S using #17.

2. To pierce a slot (15-16) for a tab. The slot is 6mm long and 1.5mm wide.

3. To form a Strip into a U section (11-12). It is possible to do this for only part of its length, as in the Trolley (Fig.9), where only the handles are formed.

4. To manufacture a tubular axle (13-14). See Fig.5. One starts from a 10.5mm Strip, already formed into a 'U' by the preceding method. Both Dies 13 & 14 have a semicircular form, less deep than #11. The manual explains that it is necessary to use the Press action many times, turning the workpiece back & forth, before both sides of the axle are perfectly joined together. Once completed, the axle fits into the Collars.

5. To make a cut (1-2). This is achieved by shearing the metal as the Dies close together. Naturally it is necessary to position them carefully to line them up exactly. The final shape of the workpiece depends on its orientation when the Press is operated. This is certainly not easy to do when the shape of the piece must be defined with a high degree of accuracy. For instance, the tabs of the 'Querstege' of the Trolley (Fig.9) must be positioned exactly so that it can be inserted through the slots in the handles and one must use the Press several times while moving & turning the piece a little between each stroke.

To make a disc one starts with a square a little larger than the future disc and forms a hole in the centre of it. Then, with the appropriate end hole of S (O or Z) on the Lower Die, one puts this square on #17, which is inserted into the hole of S that will give the desired diameter. The possible diameters are 27.5, 52.5, & 77.5mm using hole Z, and 2.5mm less for each with hole O.

Lowering the arm starts to cut the disc, and then one slightly rotates the square before the next cutting stroke, and continues until the circle is complete, giving a disc. Later, other actions will convert discs into wheels, pulleys, or gears.

6. To make 90° bends (9-10). Using these Dies it is possible to form a Strip into an angle girder, or even part of it as the arms of the Trolley (Fig.9). One can also do it crosswise: with four steps, one has a double bent strip. In the model plans a fold is indicated with a dashed line.

7. To flange a disc (7-8). Both Dies are angled at 45°. The disc is positioned on Strip S with #17, at the same place as when it was made. With two flanged discs, one makes a pulley, the #12 in the Eccentric Press for instance (Fig.10). As a wheel the pulley 'V' can carry a Tyre (Fig.9).

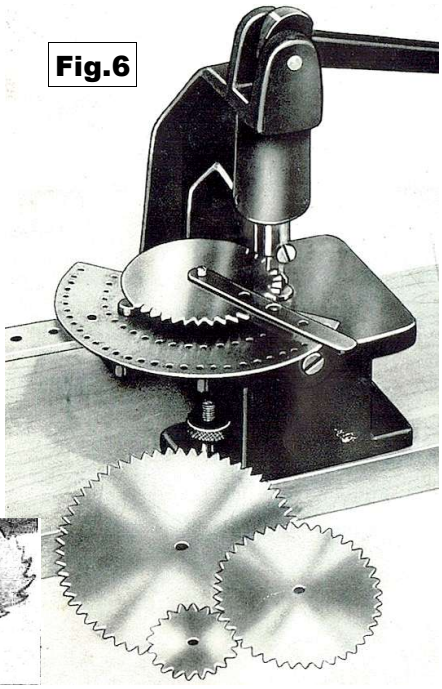
8. To cut a gear (5-6). The number of teeth is 20, 40, or 60, for the three disc sizes. The Upper Die 6 shears out the area between two teeth. The disc is rotated between strokes using the Indexing Plate, D. Referring now to the picture on the manual cover (Fig.6 right). The Holder #17 in Strip S carries the disc with the Strip B above it, and Plate D below (using its 6mm hole). Bracket C is bolted under B by the Threaded Pin in the appropriate 3mm tapped hole so that the end of C reaches the disc and locks the disc and Strip B together. The 2mm end of the Bolt engages with one of the 2mm holes in Plate D. Also a Bolt is used to lock D to S (its head can be seen in Fig.6 to the left of the disc, and half hidden by it). Thus all the parts, B, C, D, S are solidly held together. Then after one stroke, Strip B and the disc are rotated relative to the Indexing Plate and the 2mm pin moved to the next hole in said Plate.

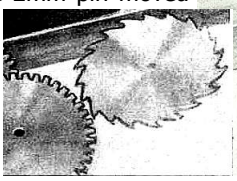
Note though that as far as can be seen S could still rotate about the Lower Die and any such movement would cause an error in the spacing of two adjacent gear teeth. Even if S is not locked to the Press in any way, it would possibly be unlikely to move unless knocked inadvertently, and so perhaps this would not be a problem in practice. Nothing is said in the Manual on the need for care on this point.

As mentioned later a ratchet wheel had been added to the right of the 3 gears on the cover of a late edition manual. It is shown inset in Fig.6. I do not know how its inclined teeth could be produced.

OSN indicates that the use of an Indexing Plate was not in the original patent, it was only patented in 1953.

Fig.6





MANUALS and MODELS

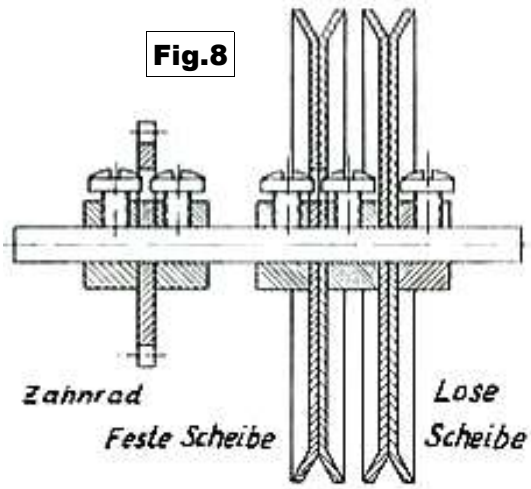
Fig.7

The manual (right), in German, bears only on manufacturing pieces: it includes no models. As can be seen this first edition was entitled 'Anleitungsbuch mit Vorlagen', that is 'manual with models'. This erroneous reference disappeared in the later edition, leaving only 'Anleitungsbuch'. Also the Reichmann details were changed to become 'JULIUS FROMMHERZ, MEWEKA ¦ KASSEL-WILH., WEISSENSTEINSTRASSE 50'. Another change was, as mentioned earlier, the addition of a ratchet wheel to the right of the 3 gears, as shown inset in Fig.6.

The manual has 20 pages, 212*148mm, plus covers, but only the first cover is printed. After an introduction, three pages describe the Press & other parts; then the Press is shown using all the Dies in succession, and finally a few words of advice on how to use the system.

One point of particular importance is how to fasten the circular parts to the axles. The system cannot manufacture bosses; the method consists in putting a Collar on each side of the discs (see Fig.8). The Collar tapping is not exactly in the middle, and the Set Screw has a large pan head. Therefore, its head slightly overhangs the side of the Collar on one side, but not on the other. If one wants to fasten a circular part, such as a pulley or a gear wheel, to its axle, both Collars are positioned so that the Set Screws are against the disc on both sides. For this to work, one must also drill another hole in the disc near the central hole: the sides of the Set Screws' head penetrates into it, and will drive the disc in rotation. In Fig.10 we can see such a hole in parts 10, 11, & 12. If the disc is to be loose, no hole is drilled, and the Collars are put on the other way around. In Fig.8, two pulleys are on the same axle; the one to the left is fastened to the axle, and the other is loose. In only one model another

Fig.8



method allows disc 8 (Fig.10) to be fastened to an axle using disc 9 which is bent. A Set Screw holds its short arm on a Collar and then the other arm is bolted to the disc (a small figure top right explains how it works).

Ten models are described on separate sheets. Four of them, rather simple, including the Trolley in Fig.9, are on 208* 146mm sheets. Six are on larger sheets, each of which is a different size but folded to the same size as the simple ones. For Fig.10, the size of the unfolded sheet is 418*295mm. One of each of the parts that must be made is shown full-size; on the large sheets, each has a part number. There is also a view of the completed model and, for the large models, a table showing the part number of each part, how many of it must be made, its name, its thickness, & its length for axles. A bend in a part is represented by a dashed line. If necessary, a small figure details a difficult sub-assembly.

The six large models are a Forklift Truck, an Eccentric Press (Fig.10), a Lathe, a Shaping Machine, an Electric Motor, and a 4-Engined Aircraft. The latter is by far the most complex model and 2 sheets are needed to describe it. Fig.12 overleaf shows one of them, with some of the illustrations from the second, and notes on the construction.

In later sets the Plane & Motor were replaced by a Conveyor Belt, and a Tractor which requires two large Tyres.

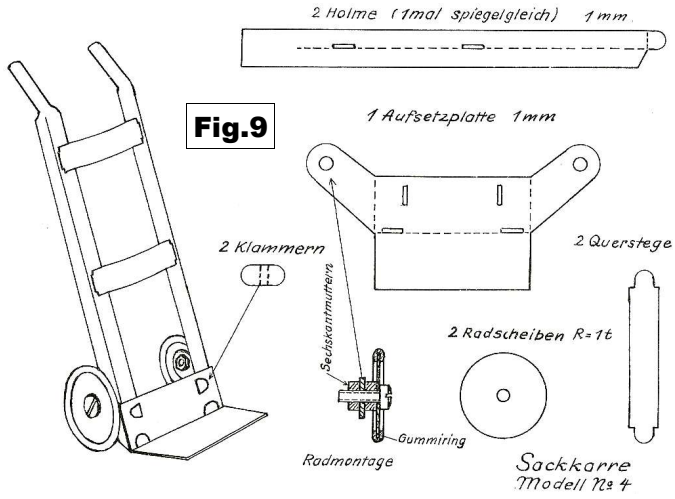


Fig.9

It is noteworthy that three of the models are machine tools. Unfortunately, one cannot use them for manufacturing parts: the Lathe has no gearbox, and no tools for turning parts. Moreover, their aluminum structures are too weak to support the stress of machining metal parts. However, we can dream of a super-DIY system that could produce more parts to enhance the system.

The manual gives some pieces of advice, but I could sum up several of them as follows: 'try and try again, and again'; this is not very useful. All the operations on discs are clearly explained, and it seems easy to do them with good accuracy. On the contrary, it is not clearly explained how various cutting or drilling operations can be carried out with a good precision. If one wants to connect two parts with a tab and a slot, both must be made at the correct place. Perhaps, one could cut the part from the model sheet, glue it on its aluminum blank, and then use it for positioning the part on the table of the Press. However, this is not mentioned in the manual, and no other method is proposed.

END WORD

This high-quality system is very ambitious, and a trained specialist can produce outstanding achievements: OSN mentions a 4m long model of the famous Wuppertaler overhead railway. However, it is not easy for a beginner to manufacture the parts for a model; the manual would be difficult to use for a child if he has no professional support. Cutting the parts that are not circular to the right dimensions is a difficult task. In my opinion, this system would be suitable for a technical school, where the teachers could help the students deal with its most challenging aspects. Furthermore, the way discs are fastened to the axles is rather odd.

If it may be difficult to build a model, it is much more difficult to design a new one. How could a teenager invent an original model that does not look like a shoe box? It must be made up of small parts, one has to draw them and determine how to connect them. This is especially hard for a mechanical model with moving parts.

If this system was designed for technical schools, it is excellent; however, the manual indicates that its author expected other purchasers. Using this system was probably a daunting challenge for teenagers left to themselves. This explains why it was not successful, although it lasted several years & was based on many excellent original ideas: its sets are very rare.

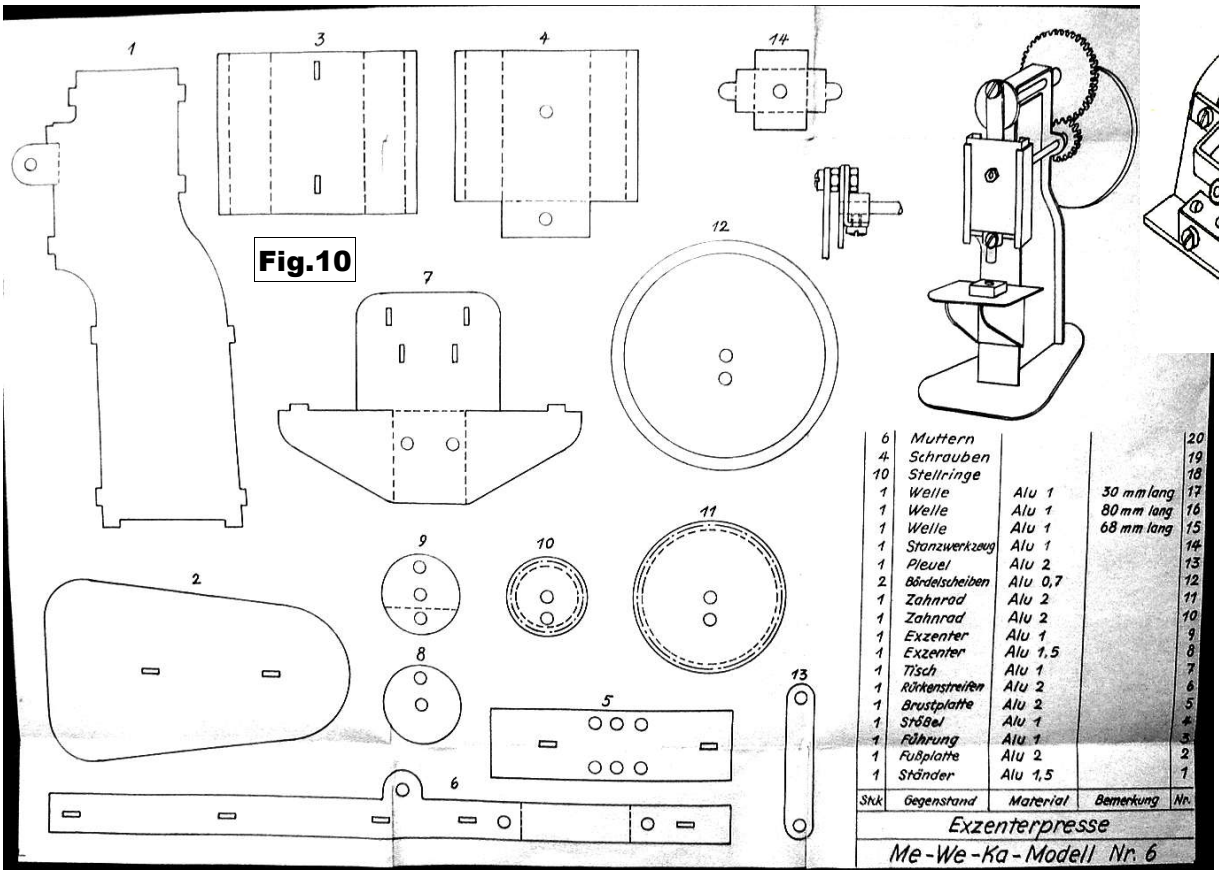


Fig.10

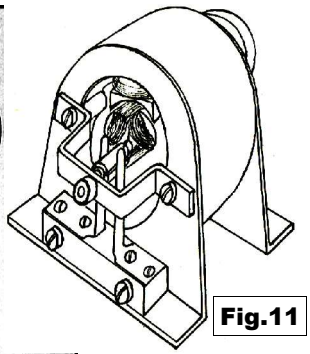


Fig.11

The AIRCRAFT MODEL One of the model sheets in shown below, with a side elevation and plan view. Various items from the second are inset or alongside, but they are not to scale. The model's span scales at 50cm; its length at 35cm.

The fuselage is made from identical right & left halves (shown at 'a'), formed to match the 3 bulkheads 'b', and joined by them. They are bent up as shown at 'b' to provide the necessary tabs. The slots for said tabs seem not to be shown, and also it's not clear how the cockpit windows are to be represented.

Each wing is formed from 'c' to the aerofoil sections in 'd' (at the wing root & tip). The leading edge, with its appreciable radius, might be difficult to shape because the wing chord over much of its span looks too wide to fit under the Top Die in the Press. Suitable parts such as the 'riblets' 'e' fit into the slots to help maintain the shape and carry the Wire used to allow the flaps & ailerons to pivot. 'f' shows an inner engine nacelle with slots for the undercarriage legs, and the motor cowling.

The fin & tailplane are made along similar lines with pivoted rudder & elevators.

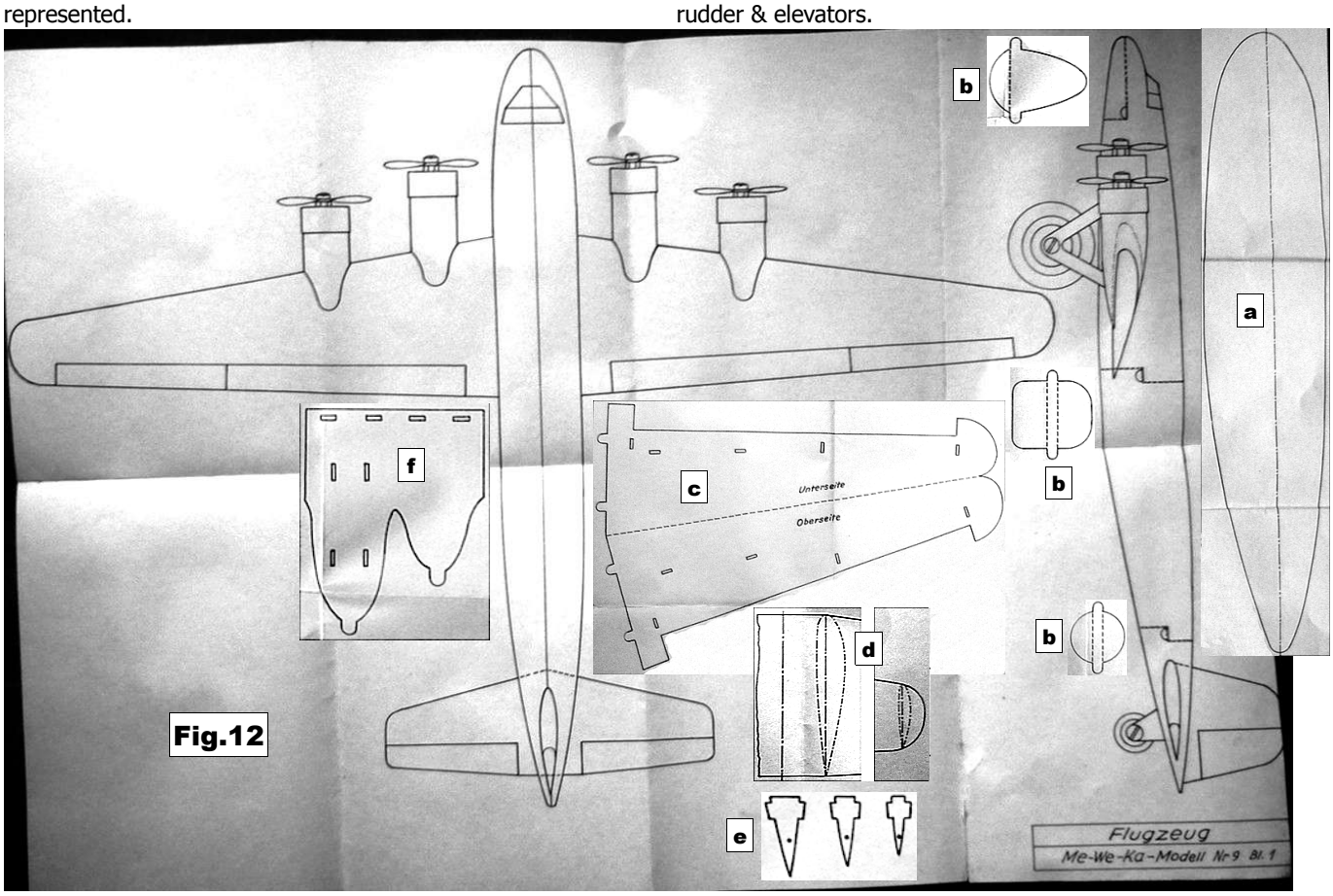


Fig.12

OSN 53/1629 **MEWEKA: S5**

2 FERROX ITEMS First a **'PHASE 1' MANUAL** In reviewing this German system in 36/1089 it seemed to fall into 3 Phases. The only information on Phase 1 was a No.2 outfit without a manual. Now, thanks to Urs Flammer, details are to hand of an English language manual from this period. It has 12 unnumbered pages, 8.3*5.8", plus covers, and C1 is as the brown cover in the Fig.2 in OSN 36 except that under FERROX is: *Metallbaukasten* ¦ CONSTRUCTIONS SET ¦ Model book - Vorlagenbuch Nr. 1/2. Those are the only German words in the manual. C2 has a Preface signed by: Reinhard Drösler ¦ 13a [in a circle] Bamberg ¦ Obere Königstraße 35. Each inside page has in large print along its bottom edge: Bergmann Spielzeug R. Drösler Bamberg.

p1 has the Illustrated Parts (right) and contents of Sets 1 & 2. pp 2-12 show Models 1-23 from Seesaw to Big wind-mill, with a halftone & parts list for each.

This manual is judged to be Phase 1 because the parts match those in the Phase 1 No.2 set, and above all 'Bergmann Spielzeug' does not appear on any known later sets.

The contents of Sets 1 & 2 are, with the part names as in OSN 36, and additional details in red: • #1 Flanged Plate 7*6h, 84*72mm {0; 1}; • #2 Perf. Plate 9*6h, 108*75mm {1; 1}; • #3-8 Strips, 14,11,7,5,3,2h {4,6,6, 10,4,4; 8,6,6,12,6,6}; • #9-11 DAS, 1*12,5,3*1h {0,4,4;

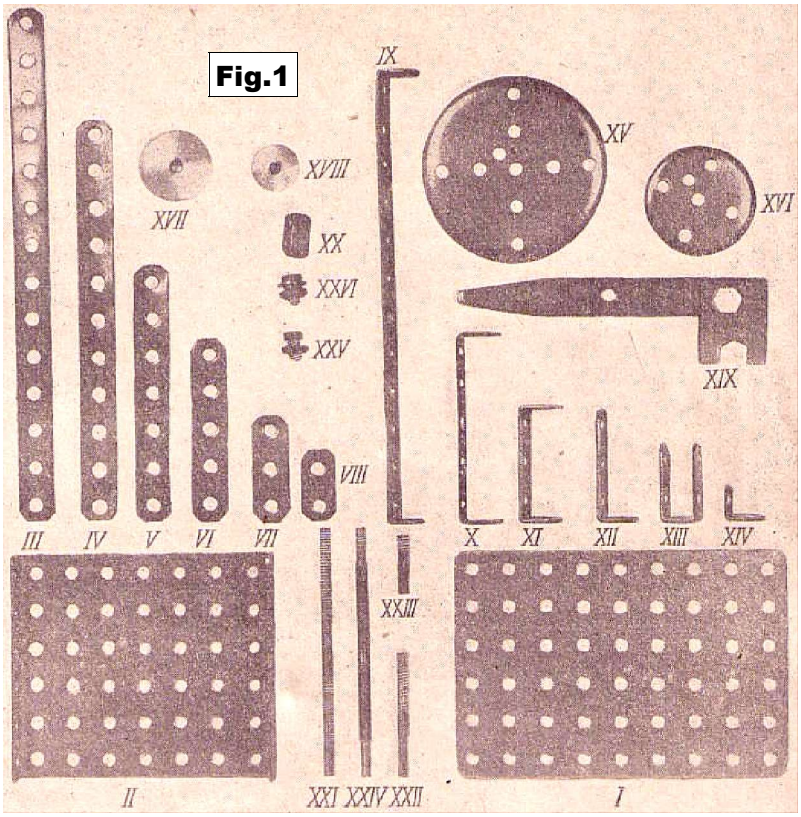


Fig.1

OSN 53/1629 **FERROX: S5**