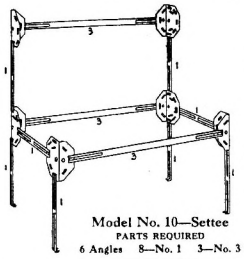
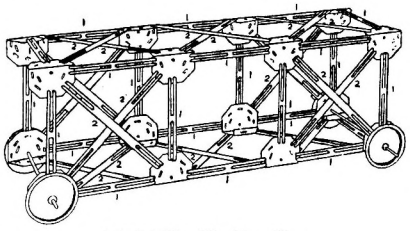
BILDAL This is a small 1930s American system which was included in MCS Part 5. There are no N&B, the parts just clip together, it's rather like a simplified version of MORECRAFT. These notes are based on material from Richard Symonds - photos of a No.1 set and a copy of its manual - and information that appeared in the *Southern California Meccano & Erector Newsletter* in 1989, contributed by Steve Riddlebaugh, who had found a No.2 outfit.

The main parts can be seen in the models below. The forked ends of the Strips were turned up at right angles at their extreme ends, and these were sprung into connectors called Angles, which had a series of slots around their outside edge. They also had a round hole in each face which could take an Axle, and Wheels were free on it, held by Spring Washers, that look, from the illustration, to be the sort that are practically impossible to remove.

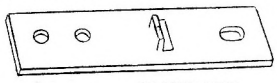


Model No. 10—Settee
PARTS REQUIRED
6 Angles 8—No. 1 3—No. 3



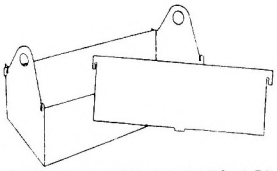
Model No. 20—Box Car

There were a few other parts. The Clamp was used, as far as I can see, to hold 2 Angles together back to back, when it was needed to do so. The ERECTOR-pattern Lock Collars were mainly used either side of an Angle to clamp against it and 'lock' it to a shaft. Their Set Screw was the only threaded part in the system. The Tilting Link can be seen in the Lift Bridge below, and the Axle through the bottom end hole, and the pressed out nib in the slot in the Angle, locate it relative to the latter, and then the other end hole can be used for the Axle about which the bridge rotates. Finally a Weight Box or Carriage which was intended to hold ballast, for example on the Lift Bridge, or to be used as a car on the Ferris Wheel shown in MCS.



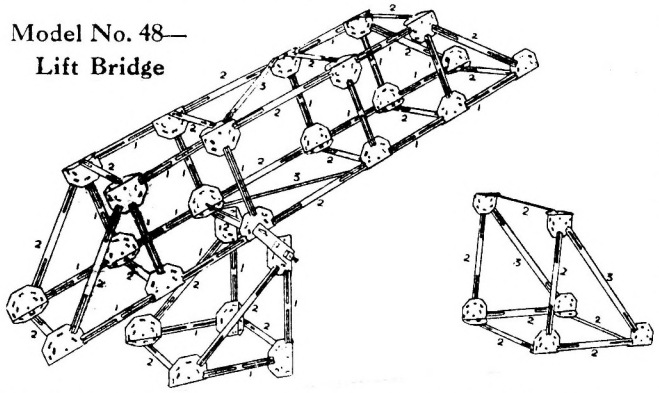
TILTING LINK

LOCK COLLAR SPRING WASHER CLAMP



WEIGHT BOX OR CARRIAGE

Model No. 48—
Lift Bridge

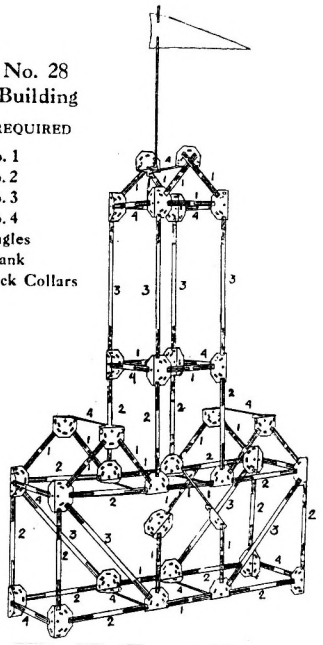


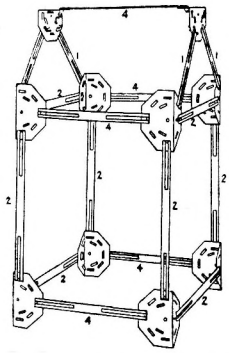
The No.1 set is in a box measuring about 13*11" and its green lid has the same large lifting bridge and two boys on it that are on the manual cover shown in MCS. It also has BILDAL No.1 and, in very small print 'U.S. Patent No.' followed by 7 figures which may start with 171 or 121, but none of them are clear enough to be sure. The parts are mounted on red card.

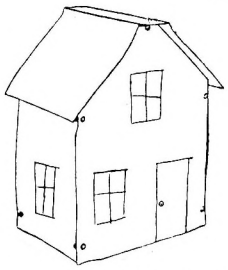
The manual cover isn't the one in MCS - the entry there came from Steve so presumably that one was from the No.2 outfit. Richard's looks like a full colour photo of two boys and a smaller girl playing on a living room floor with a toy train running through a BILDAL girder bridge. Inside are 49 models including the 3 shown in MCS. There's quite a good range for this type of set but many don't have the cross bracing which would be needed to make them rigid.

The House below was given as an illustration of how the bare bones could be clad in card etc, held it was suggested by 'paper clasps'. No Set Nos. are mentioned anywhere but only models Nos.1-19 and 5 later ones could have been made with the 32 Strips and 12 Angles in the No.1 set.

Model No. 28
Office Building
PARTS REQUIRED
24—No. 1
16—No. 2
8—No. 3
15—No. 4
32—Angles
1—Crank
2—Lock Collars







Model No. 14—
House

Now some comments on parts in Richard's set:

- The 32 Strips are 3/8" wide and the 4 different lengths look like the illustrations except that there's a centre hole in all but the shortest.
- The 12 Angles scale at 2" wide and like the Strips are quite thick.
- The 4 Wheels are about 2¼" dia and have a brushed brass finish rather than bright green paint mentioned in the Parts List. Axles are 1/8" dia and the 2 lengths in the Set scale at about 7½ and 9¼", while the Crank Handle is some 9" overall. Only one Axle is shown in the Parts List.
- The Tilting Link is about 3" long by ¾" wide.
- The sheet metal parts all look as if they have a brightish grey galvanised finish. There isn't a Weight Box in the Set but it is said in the Manual to be painted red.

The company that made BILDAL still exists and is now the Bettcher Manufacturing Corp. of 16000 Commerce Park Drive, Brookpark, OH 44142. Over the years they have made many products but the only constructional toy was BILDAL for about two years, probably in the early '30s.

SUMMARY OF MANUAL. •Name: BILDAL •Details of maker: The Bettcher Stamping & Mfg. Company, 3100 West 61st St., Cleveland, Ohio. •Dates &/or Ref Nos: none. •Page size: approx. 200*150mm deep. •No. of pages: 20 (unnumbered) inc covers. •Language: English. •Printing: coloured cover, line drgs of models. •Page Nos. of Parts List: 4,5 [no PNs except Strips 1-4] •No Set Contents. •Sets covered: not stated. •No. of models: 49. •Name, Model No., Page No. of first & last model: Roof Truss,1,6. Airplane,49,18. •Other notes: 'H.W. Graves, Licensor - Patents Pending' on p3.

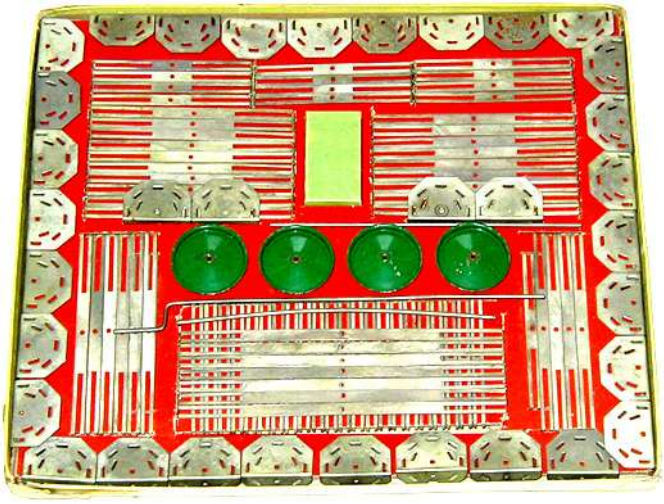
SMALL ADS

- WANTED: Structator sets, parts, manuals. Also, wood, paper, or glass sets from a Werkestatte, Exhibition, the Bauhaus, or prior to 1870. Arlan Coffman, 1223 Wilshire Blvd. Ste 275, Santa Monica CA 90403, USA.

- WANTED: info - history - background - unusual engineering applications of Märklin Gear Rings. Peter Page, 418 Tuttle Hill, Nuneaton, CV10 0HR. Tel: 01203 346480.

A BILDAL No.2 Outfit

Some notes about a No.1 set were given in 13/358 and now, thanks to David Hobson, I've been able to examine a near complete No.2. The lid is like that of the No.1 right except for the Set No. at the bottom, and the line below BILDAL No.1, which is blank with no Patent No. in it. So probably David's set is an early example before the patent was granted.



The box is 18½* 15½*1" and as can be seen from the photo right, the parts push into slits in a red card, or for most of the Angles, between the edges of the card and the sides of the box. The number of Strips found was 5 less than those needed for the manual models but even so some had to overlay others, including all the longest which are on top of the shortest. There is no obvious place for the Axles & Crank Handle and they are shown lying above & below the Wheels. The small parts, including the Tilting Links, are in the light green box, 3*1⅝*⅞".

The notes on **the parts** which follow amplify those in OSN 13. The sizes of the **Strips** given in the manual (& in MCS), 3$^{15}/_{16}$, 6$^{3}/_{16}$, 9⅜, 4⅞", are overall lengths. Their split ends (below) are bend over at about 90°, and as they are pushed into a slot in an Angle they push together slightly, and then spring back so that the small concave cutouts on each side engage with the sides on the slot. Thus the Strip is positively located and prevented from falling out. Rectangular tabs are pushed through to form the slots in the **Angle** (as shown below) and these serve to limit the angular play of a Strip (below left) to about 10°. This applies to most of the Strips because their ends are bent to less the 90° (by about 10°); in a few parts the bend is 90° and this nearly eliminates the play, although it is then slightly more difficult to push the Strip into the Angle. The **Wheel** (below) has a slightly conical, flanged, disc & a ⅜" o.d., untapped, 3.6mm bore, steel boss on the inner face, held by a narrow ring of peening, nearly flush with the disc. The length of the boss, about 8mm, prevents 2 Wheels, back-to-back, forming a pulley, and in any case clamping them together with Collars or Spring Washers would probably be unsatisfactory. The **Axle** & **Crank Handle** are 3.40mm Ø (.134"). Only 9¼" Axles were found in the Set and the Crank Handle differs from the OSN 13 one – at 12⅜" it is longer. Its 1½" handle is offset .7". The **Tilting Link** measures 2.3*.5" and is thus smaller than the OSN 13 part (looking again at the latter it's possible that it was made by an enthusiastic earlier owner). The U-type **Collar** is 9½*9½*11½mm deep, and is tapped 6-32. Its ¼" Ø, round-headed **Set Screw** is nickeled steel and ¼" u/h. (There were 2 similar 'spares' in the Set, one dull plated, and one bare steel.) Also in the Set, the small, nickeled wire **Screwdriver** shown under the Angles. It is not mentioned in the manual, and is 2⅝" long o/a. The **Clamp** is made of .07" deep rectangular section steel and is .7" long. The **Spring Washer** is plain steel, ⅜" Ø – it has adequate grip and is quite easy to push on & off.

The **contents of Sets** No.1/2 are given below, with, for each, the number of parts found in the sets followed, if different, by the number needed for the manual models in brackets. Strips 3$^{15}/_{16}$, 6$^{3}/_{16}$, 9⅜, 4⅞": 22 (24),29(30),7(8),15(16)/8,12,4,8. Angle: 34/12(10). Wheels 4/4. Axles: 2/2+2x 7½"(2). Crank Handle: 1/1. Tilting Link: 2/probably 0(0). Collar: 2/?(0). Clamp: 5(4)/?(0). Spring Washer: 9(4)/?(4). Screwdriver: 1/0.

The manual & models The manual is identical to the one in OSN 13. The parts are very easy to assemble and even the larger models, the Lift Bridge shown in OSN 13 for example, can be made in a few minutes. A few of the Strips tended to fall out of the Angles because the bend point at the end was not quite right and so the cutouts didn't engage the edges of the slot in the Angle. 2-dimensional frameworks were floppy in the out-of-plane direction and as already explained this would have been greatly improved if the bends in the Strips had been are 90°. In-plane diagonal bracing was needed to give acceptable rigidity and with the parts in the system this was only possible for squares with 3$^{15}/_{16}$ or 6$^{3}/_{16}$" Strip sides. The same remarks applied to 3-dimensional frameworks and the OSN 13 House was very wobbly. The Lift Bridge really needed more bracing but was strong enough without it to be raised & lowered, even with no counterweight. The models generally are a decent size, over 2 feet long for the Bridge.

Early systems such as KLIPTIKO had parts which were assembled without N&B but as far as I know BILDAL was the first to use Strips in this fashion. It can be imagined that with a few more parts and a little development it might have been quite successful with youngsters in a quiet way – rather as KLIPTIKO was here in the inter-war years.

edges of the Flanged Plate. Scaling from the size given for the box, 40*23cm, the hole pitch is, as might be expected, ½", or very near it.

Initially I thought MECANEX was a 'new' system but I find that it is in fact listed in my Database. I can't now trace the source of the entry but the additional points of interest there are that the hole pitch is 12.65mm, the Axles are 4mm Ø, but the N&B are only 3mm.

MECANEX: S1 [37/1101]

5. **Snippets: BILDAL** First, a correction to the **Set 1 Contents** given in 33/983. From the manual & set to be described, and Ebay photos of two apparently unused sets, only the stated quantities of Strips & Angles are in the No.1, and none of the other parts.

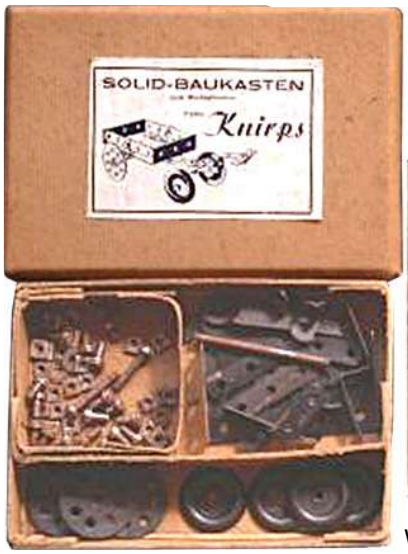
Next, recall (see 33/983) that BILDAL was made by Bettchers in Cleveland and that there were Sets 1 & 2. A No.1 set on Ebay took my eye - the box had No.1 on the lid and with just Strips & Angles the contents were as above. But the manual cover, below, a design not mentioned in OSN previously, has No.3 in the top left corner. (The same cover without the No.3 is in MCS.) The No.3 looks too neat to have been made by a youngster's printing set, so was there ever a No.3 set? Something to look out for but the Ebay ad said that the Set was 'made in Westmont, Illinois, so that might be a clue. Did another company produce BILDAL after Bettcher? Westmont is near Chicago & some 300 miles from Cleveland.

The manual with one of the other Ebay No.1's had the OSN 13/358 cover but only the Strips & Angle were shown & listed in the Illustrated Parts, just the parts in a No.1 that is. The Ebay ad included 3 pages of models, those on two are identical to models on OSN 13 pages (#1-5, & 15-18). One of the models on the last page, #21, was also identical but the other two, #19 & 20, had had the Wheels in the OSN 13 version removed, though they were still entitled Wagon & Box Car! All the pages had small typographical changes and p3 differed in having no reference to H.W.Graves as Licensor.

BILDAL: S2 [37/1101]

6. **Snippet. SOLID** A brief note on this small German system, based on a Model Sheet, appeared in 22/647. In the next column, the Ebay photo, courtesy Thomas Morzinck, of an actual set, and as can be seen the parts, apart from the N&B, are black. The maker was given as G. Schmidt & Co., of Oberbarmen (a suburb of Wuppertal). By scaling from the box, which was said to measure 17*12cm, the pitch of the holes in the Strips is at least 15mm and possibly a little more. But in the Wheel Disc it much less, 11mm or so.

The small print on the Model Sheet can't be read but it differs from the one in OSN 22 in that 16 parts are listed against 15 before, and the Ebay ad spoke of 11 models, 2 more than previously. Also if all the parts in the box were from one set there are more Wheel Discs and 'Half



Wheels' than the two of each listed on the OSN 22 Sheet.

SOLID: S1 [37/1101]

7. **Snippet. 'New' System: DER KLEINE TECHNIKER** There is a simple electrical outfit of this name but almost certainly not related to the set below. All that can really be seen of the parts are some brightish Strips, and the blue Plates which, apart from their colour, look like STABIL. There was the cover of an early SCHEFFLERS manual shown in the Ebay lot but as far as is known early SCHEFFLERS parts were similar to later ones and quite unlike the blue Plates.

DER KLEINE TECHNIKER: S1 [37/1101]

8. **Snippets. 'Matchbox' Sets** These are the little outfits with their parts packed into a normal, small 'matchbox', and details of the two types then known were given in 6/131.

A further variant was made in America by Louis Marx and is shown in MCS under MATCH BOX CONSTRUCTION SET (2).

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'New' Indian System: MODELLO These notes, courtesy Jean-Pierre Guibert, are based on an unused No.0 outfit. MODELLO was a copy of MECCANO produced by Funcraft Industries, Bombay - 3. The models were copied from the MECCANO 1954-61 No.0 manual. The range of sets isn't known but the manual's Intro mentions Sets 00, 00a, 0, 0a, & 1.

The No.0 box measures 28*21*2.5cm and its lid & base are shown in Figs.1 & 2. The set's contents (with 25 types of part) are identical to those in the matching Liverpool outfit.

Fig.1

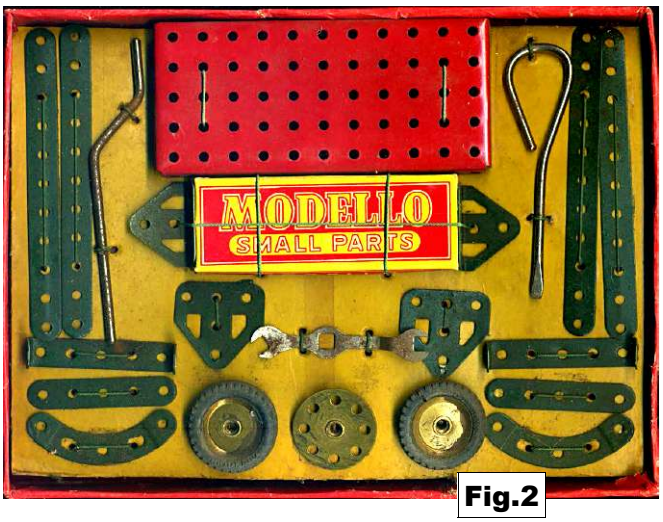


Fig.2

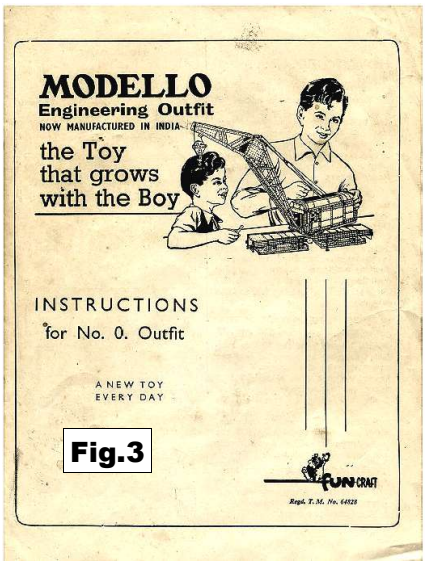
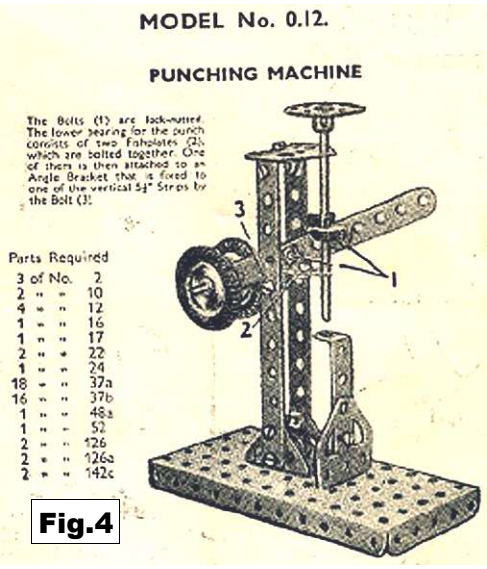


Fig.3

Holes in the parts are 4.2mm Ø at 12.7mm pitch and the Axles are 4mm Ø. Quality is not quite as good as MECCANO. The N&B look very like Meccano's but are solid brass. I can't read the word moulded into the Tyre but it is neither MECCANO nor MODELLO.

The manual has 8 pages 25*19cm with the front in Fig.3. It has 17 models from 0.1 GARDEN SEAT to 0.17 LATHE, and all are from the 29 in the MECCANO No.0 original, but not in the same order. They have the same illustrations, Parts List, & building instructions, and one is shown in Fig.4. The back page has advertisements for Funcraft's Chemistry Set, Little Doctor outfit, & some Conjuring Tricks.


MODEL No. 0.12.

PUNCHING MACHINE

The Bolts (1) are lock-nutted. The lower bearing for the punch consists of two Fishplates (2), which are bolted together. One of them is then attached to an Angle Bracket that is fixed to one of the vertical 5½" Strips by the Bolt (3).

Parts Required

3 of No.	2
2 " "	10
4 " "	12
1 " "	16
1 " "	17
2 " "	22
1 " "	24
18 " "	37a
16 " "	37b
1 " "	48a
1 " "	52
2 " "	126
2 " "	126a
2 " "	142c

Fig.4

OSN 50/1517 MODELLO [2]: S1

5. Snippet. 'New' System: MI TALLER Mi Taller means My Workshop in Spanish and the No.3 set below was seen on the Argentine Ebay earlier this year, along with Sets 2 & 1. They have respectively 210, 140, 80 parts with 8, 5, 5 Tools. All 8 Tools are shown on the No.3 lid; those for the smaller sets are the Screwdriver, 2 Spanners, Hammer, & Pliers. The parts look more akin to MECCANO than CONSTRUCTION but unusual parts are 7-hole type Trunnions, 5*5h Flanged Plate, & white Flexible Perforated Plates. The No.3 box measures 50*34cm.

MI TALLER: S1 [50/1517]

6. **SOLID Parts.** Some notes on this small German system were given in 22/647 & 37/1101. One thing missing was details of the parts and now Urs Flammer has sent notes about his.

The parts are made of blackened steel, 1mm thick. Holes are 4mm at 15mm pitch and none are elongated. Strip parts are 10mm wide with large-radius ends, and the corners of the Flanged Plate are square.

The thread is M4. Nuts are square, 7mm A/F; Bolts have tapered cheese-heads. In a set seen on Ebay the Long Bolt is roundheaded, as in the photo above. It also shows the Span'driver.

The Wheel Disc is 33mm Ø with holes at 10.5mm radius. The Pulley Disc is 30mm Ø and as can be seen above a pair would form a wheel with a rather 'pointed' tyre.

SOLID: S2 [50/1517]

7. **BILDAL**. MCS has no date for this US clip-together system (see 33/983), only 'Made for about 2 years, probably in the early 1930s'. Now an Ebay item shows a Xmas 1928 ad and while not not saying the system is new, it does have the air of being so, with sets post-free from the factory if your dealer cannot supply. Games & Toys had a UK agents ad for BILDAL in May 1929.

BILDAL: S3 [50/1517]