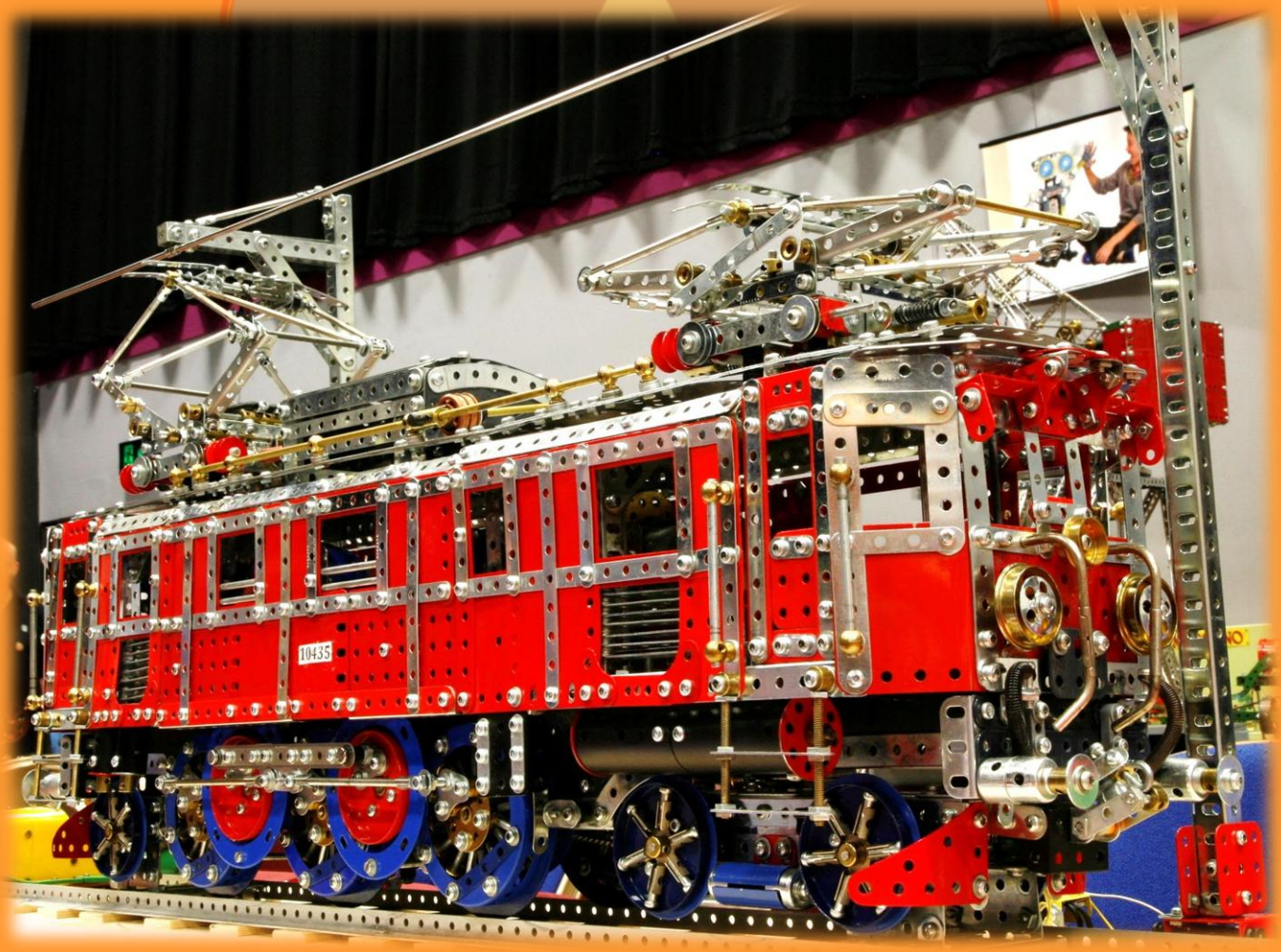
The Sheffield Meccano Guild



Journal No. 130, October 2017

The Sheffield Meccano Guild Journal No. 130, October 2017

The SMG Journal needs your support!

We welcome your reviews, news, reports, comments, building instructions, model descriptions, views, sales & wants, pictures (film or digital) or anything regarding SMG activities and Meccano in general; you will receive as much or as little support as you require. Submissions are welcomed as e-mail, scan, CD, memory stick (returned), Internet link, typed or by any other recognised form of human communication, even prehistoric pen & paper through the post.

Annual subscriptions become due each October: rates are UK junior £10, adult £15; Europe £18; rest of world £20.

Editorial 130

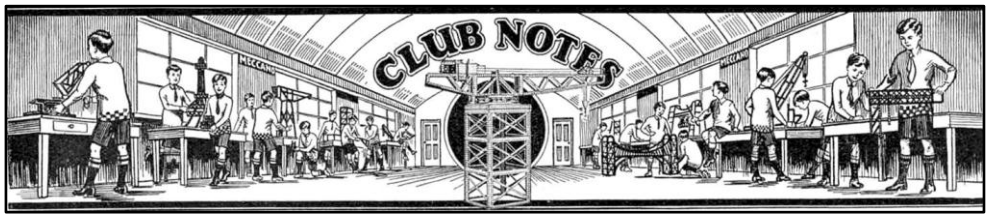
We again have the pleasure of a truly international flavour in what is the 130th edition of the SMG's publishing operation. On top of two extensive exhibition reports, our regular contributor from 'Down Under' is very much on form and it has been a privilege to accommodate at a late stage an esoteric construction, the real odd one out in the 'Contents' list below plus an outstanding model, both by Pepe Ferretti of Rosario, Argentina. Those awaiting Part 3 of John Wilson's critically-acclaimed *Steam Power for Industry*, however, will have to 'await' a little longer! The hope of producing an *SMGJ* without a tribute to lost Meccano friends was short-lived; are Meccano fanatics slowly going extinct? It can sometimes seem that way although the number of devotees at events tells a different and altogether more encouraging tale. With that in mind, I will reiterate that another rewarding SMG year ends with an Annual General Meeting on 21st October at Laughton-en-le-Morthen and if there's any matter you want airing then feel free to alert any one of your Committee members; it's *your* chance to effect a change although as matters currently stand, no great change is expected. *Rob Mitchell*

Contents

On the cover

An attractive 1:20 scale model by **Guy Kind** of a 1921 Swiss Railways (SBB) 3000 hp Ae 3/6 electric locomotive. First seen at CAM's 44th international exposition at Garges-lès-Gonesse in May, maker and model ventured to Skegex during the following month where it was pictured by our own loco aficionado, Ken Ratcliff. Guy included working pantographs and a side panel was intermittently opened by cranks to reveal the traction motors inside. The loco had the peculiar Buchli transmission, a successful but ultimately short-lived design. Note the asymmetric 2-C-1 axle layout (a 4-6-2 in steam-age terms), necessary to accommodate a transformer which was placed over the two-axle bogie. Guy was one of three CAM modellers who showed a Buchli loco at Garges and our picture-laden reportage begins on page 4.

Two Sheffield Meccano Clubs



The current SMG is not the first Meccano society to establish itself in Sheffield as we were predated by at least two Meccano societies having the steel city in their name. Ignore the fact that these days, the SMG is more Rotherham-based! Our predecessors were the 1920s Sheffield Meccano Club and then a decade or so later, the Ecclesall (Sheffield) Meccano Club; their exact starting dates are as ambiguous as our own (SMGJ112). Both of these clubs are mentioned in the *MM* under a section titled *The Meccano Guild* where the later lot are noted as having become affiliated to 'A world-wide fellowship of boys'. Reproduced here as **1** is an enlarged extract from page 158 of the February 1931 *MM* where we have a captioned picture of the no-nonsense (ex-military?) Mr R Traylen. To quote contemporary Meccano building instructions, it needs no further explanation and the 'visits to works' won't be as simple these days thanks to their reduction then a health & safety clampdown at the remnants. A further mention of the Sheffield MC occurs six months later in the June 1932 edition's *Club Notes* on page 461 where there is another captioned picture, **2**, of well-scrubbed, long-socked lads on an adventure to Manor Park. The Park with remains of a Tudor-era lodge still exists in reduced form, surrounded by postwar housing, some later cleared; it's neither one of the city's prettiest nor most sought-after areas and the Police patrol in pairs. We now move on to darkest wartime and the December 1940 *MM* in particular where page 538 bears a picture of an equally no-nonsense Mr J H Jones who led the Ecclesall (Sheffield) Meccano Club, **3**. Ecclesall is one of the leafier areas not far from the city centre and whether the E(S)MC was founded to complement, rival or replace the Sheffield MC isn't known. Apparently run on more formal lines than the SMC, their magazine *The Meccanitian* will be one of the rarest of unofficial ephemera. Anyone seen such a thing? Other than that, both clubs seem to have faded away without trace. *RM*

Meccano Club Presidents

No. 7. Mr. R. Traylen

1

Mr. R. Traylen has been President of the Sheffield M.C. since the affiliation of the club with the Guild in December 1927. He has inspired great enthusiasm among the members, who follow a very interesting programme of Model-building, Lectures, Debates and Games. A special feature is made of visits to works.

2

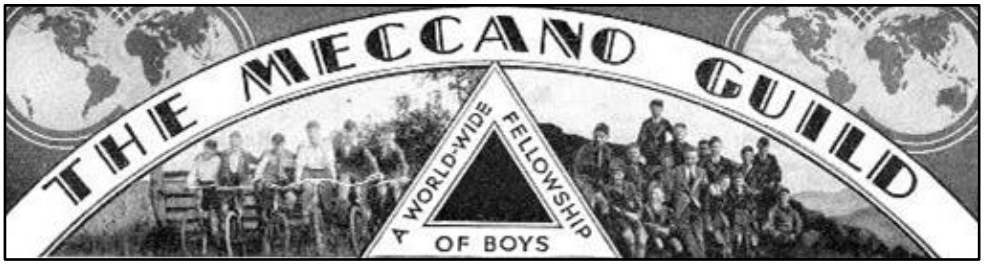
A merry group of Meccano boys photographed during a summer excursion. They are members of the Sheffield M.C. and this interesting picture was obtained during an enjoyable visit to Manor Park. The club was affiliated in December, 1927, and has pursued a splendidly varied programme under the enthusiastic leadership of Mr. R. Traylen.

Meccano Club Leaders

No. 106. Mr. J. H. Jones

3

Mr. J. H. Jones is Leader of the Ecclesall (Sheffield) M.C., secretary T. K. Jones. This club was affiliated in August 1940, and its programme has been centred on accurate and topical model-building. In recent months military, naval and Air Force models have been constructed. Each model is carefully examined by the Leader, and the marks awarded are entered on a certificate, along with a constructive criticism. A Library has been formed and a club magazine, "The Meccanitian," is issued.

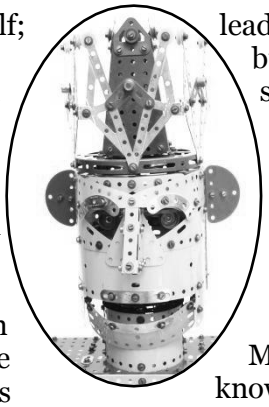


CAMeraderie!

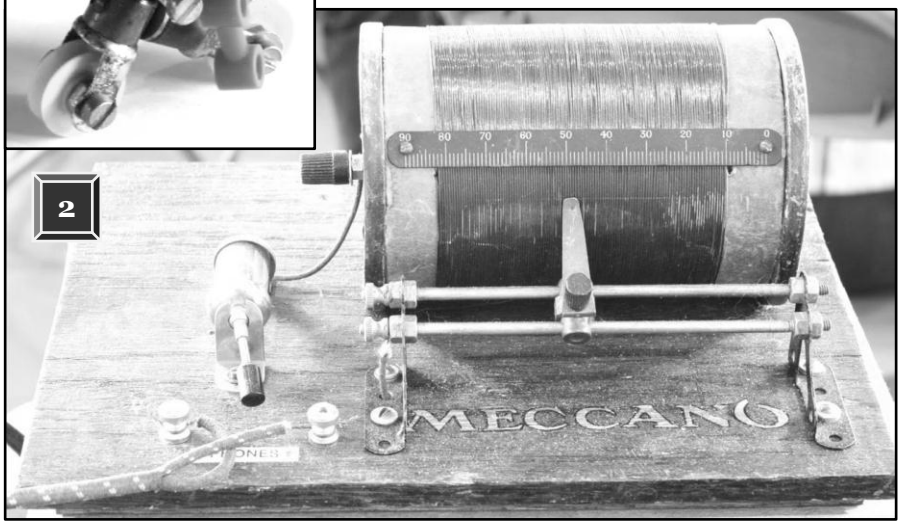
Espace Associatif des Doucettes, Garges-lès-Gonesse, 25th to 27th May 2017

Report and text by Michael (the Magician)
Pictures by Jean-François Nauroy and Rob Mitchell

Bonjour! I had better introduce myself; I am Michael (the Magician), originally by Giuseppe Servetti then extensively meddled with by our Editor. It was the latter unthinking individual, with a garrulous abettor, who lobbed my body parts in the back of a car, took me through le tunnel sous la Manche, drove on the wrong side of the road for 176 miles (283 km), reassembled me in a sports hall north of Paris then brought me back to life by the application of a few French volts. All stages went swimmingly except that final one as the same 'unthinking individual' had left my bespoke power lead two days and 400 miles (640 km) away but, after finding some wire in a bits box, stripped the ends to make them extra prickly then jabbed them in my sockets which made me wince. Despite such cruelty with overnight decapitation, I behaved myself before a degrading dismemberment for the return trip to the Maltby Meccano Works.



My tiny Elektrikit brain realised that CAM know how to organise their annual exposition with all builders allocated a space then given an information pack about the show, the area and one of their famed laser-cut 52-shaped souvenirs; there was also a trip to the Château d'Écouen for humans who had had their fill of my model mates. A matter beyond CAM's control was the sweltering mid-thirties weather, the sun trying to bleach my yellow plating. My mechanical gaze alighted on models from Australia (Chris & Winnie Johnson with their huge transporter bridge, SMGJ127; my builder reckoned the line dividing devotion from insanity can be fine), Belgium, England, Germany, Italy, Luxembourg, Netherlands, Scotland, Switzerland and Wales. Queasiness took hold when seeing lots of my components on sales stands! My builder shifted some *SMGJs*, took some renewals and welcomed two new members.



1. A new angle on a favourite little model was 'Chappy' by **François Sellon**. (RM)

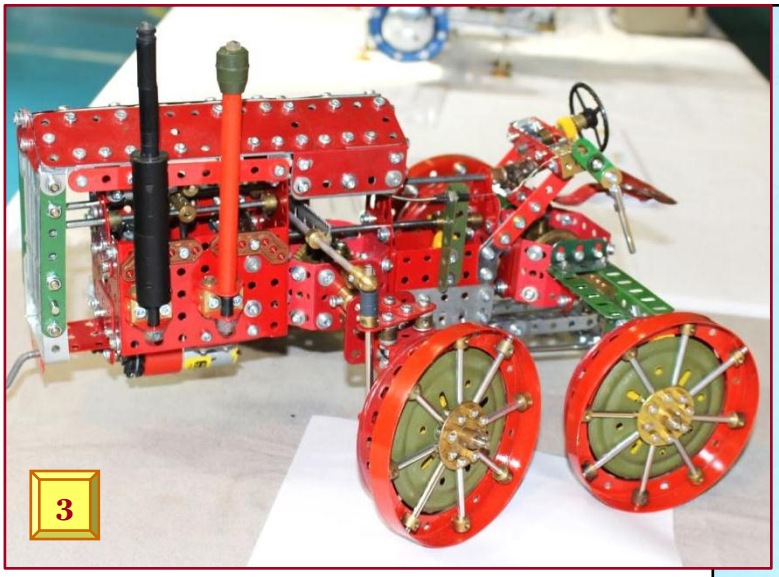
2. There were loads of rarities to make collectors go weak at the knees and this one was from **Gaston Lecluse**. (RM)

3. Paul Furness (I'm told that he's the current SMG member No. 1!) was represented at Garges after CAM took a shine to his Massey-Harris tractor so we took it with us. (J-FN)

4. Louis-Philippe Daronnat is certainly a Meccanoman with a liking for cranes and presented this large dockside example, probably the largest - and undoubtedly taller than me - model at the exposition. Looking quite small on the hook is a vintage car from the January 1954 *MM*. (RM)

5. My builder blames Guy Kind for promoting this type of ball lifter! With rotating and sliding parts galore to raise a ball a mere 4" (100 mm) or so, it's splendidly inefficient but a delight to watch running. **Jean Louis Canavy** was evidently mesmerised into building his own version. (RM)

6. Anyone heard of the Buchli transmission for an electric locomotive? My builder hadn't. It was a 1920s Swiss-invented method of reducing the unsprung weight and attendant track damage by isolating an axle's traction motor from a wheelset by a linkage and large intermediate gear. It was tried by various loco builders but is rarely used these days. CAM has produced a 75-strong series of model instructions and this is No. 11 for a 2-D-2 loco, built here by **Jacques Tarratre**. (RM)



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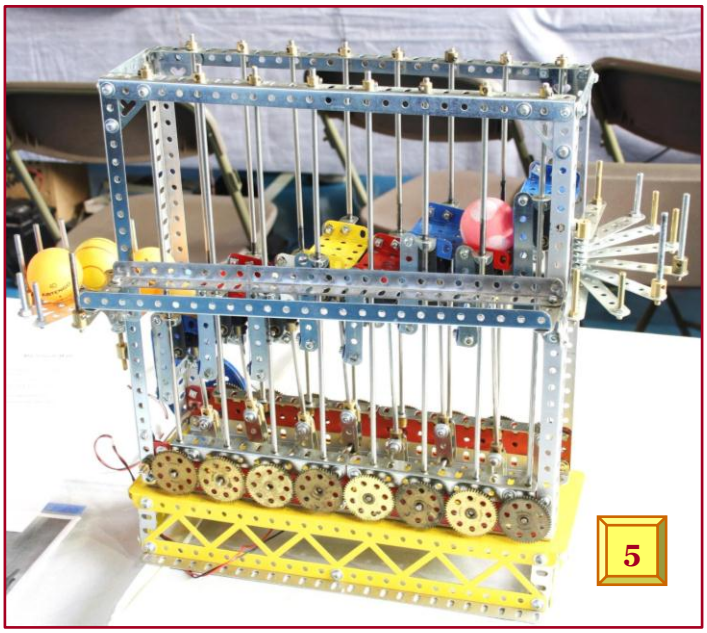

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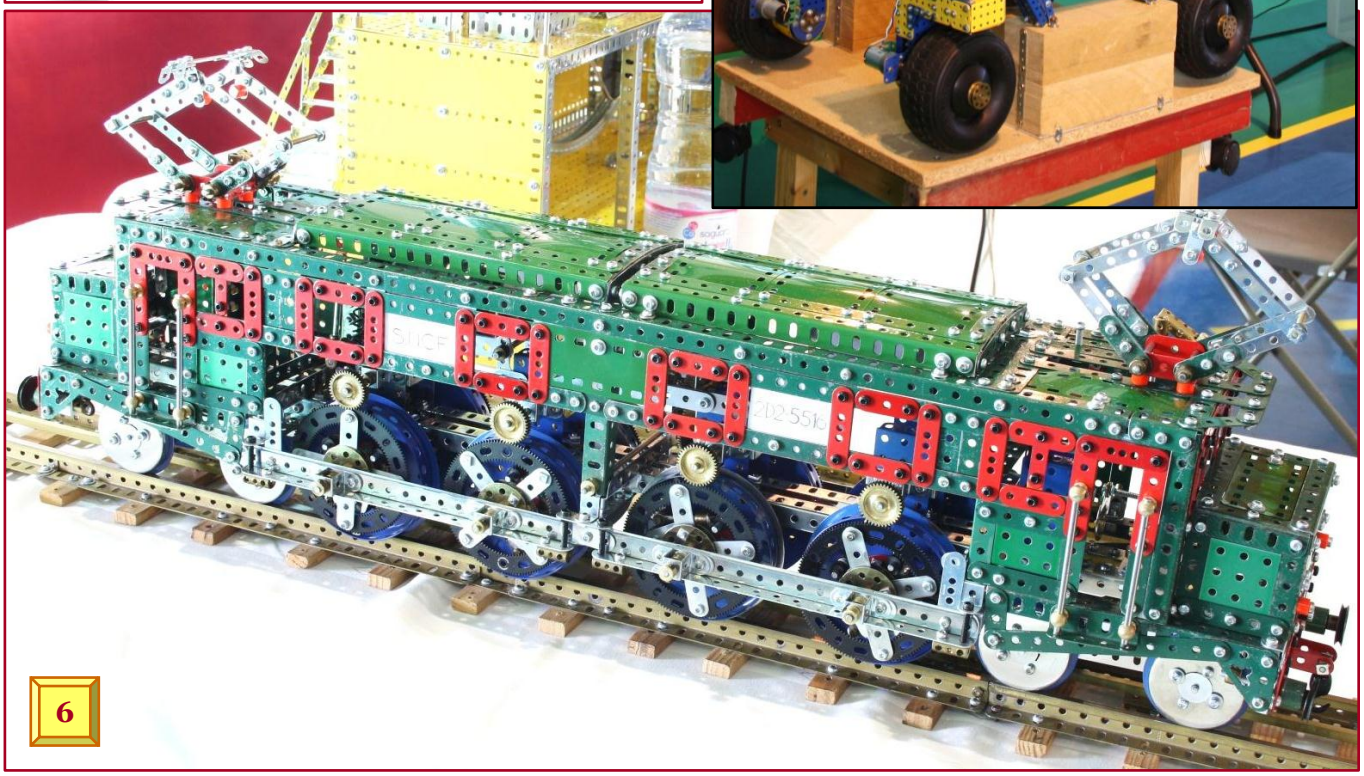

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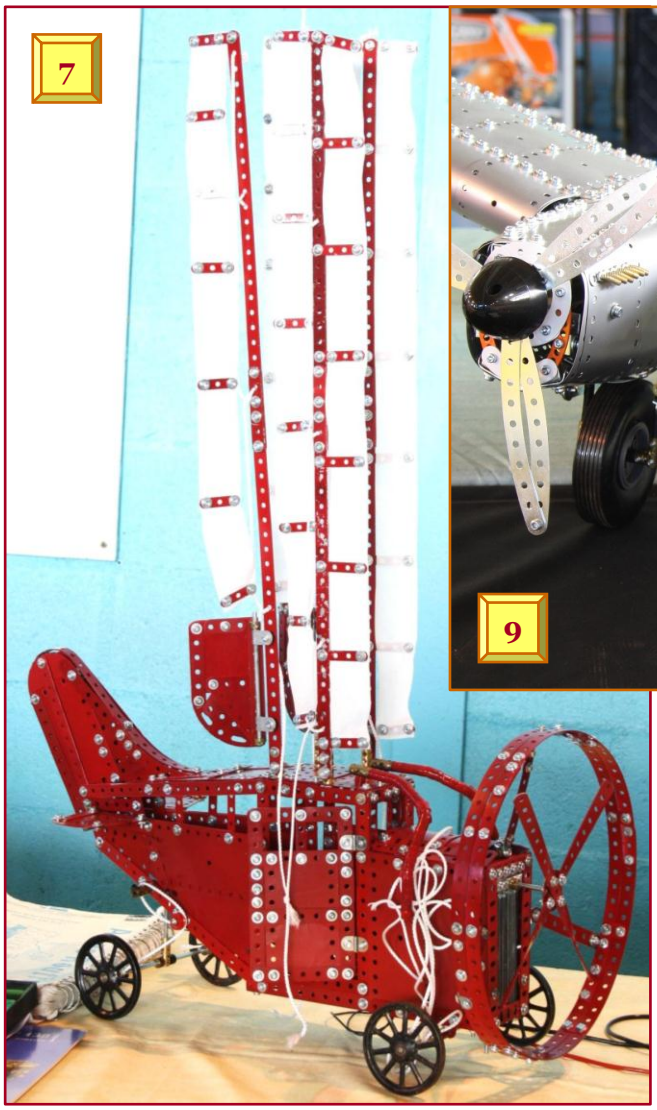
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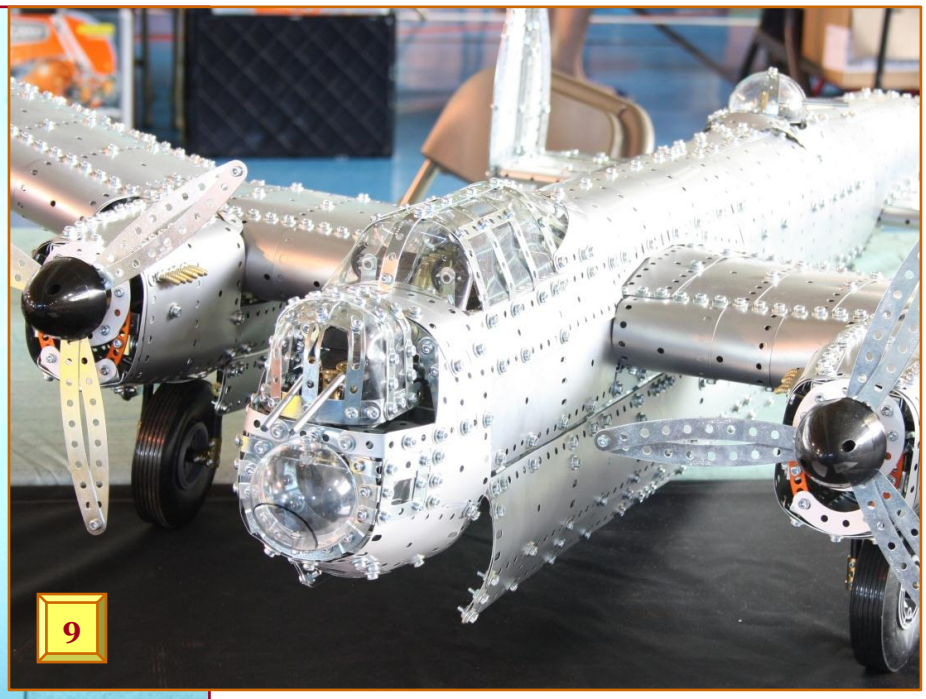
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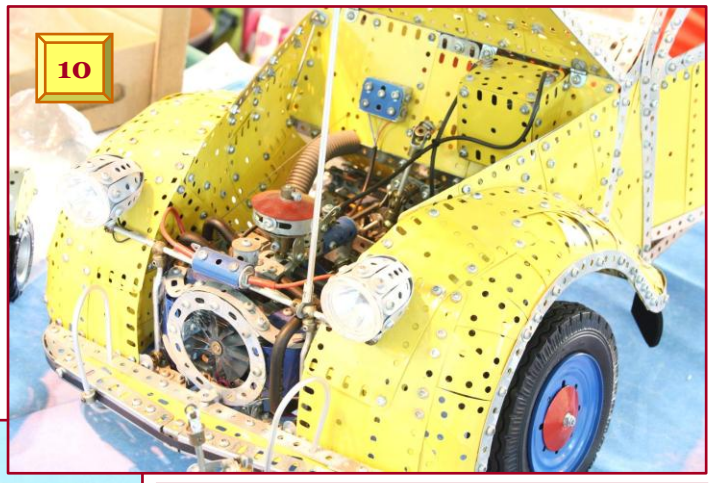
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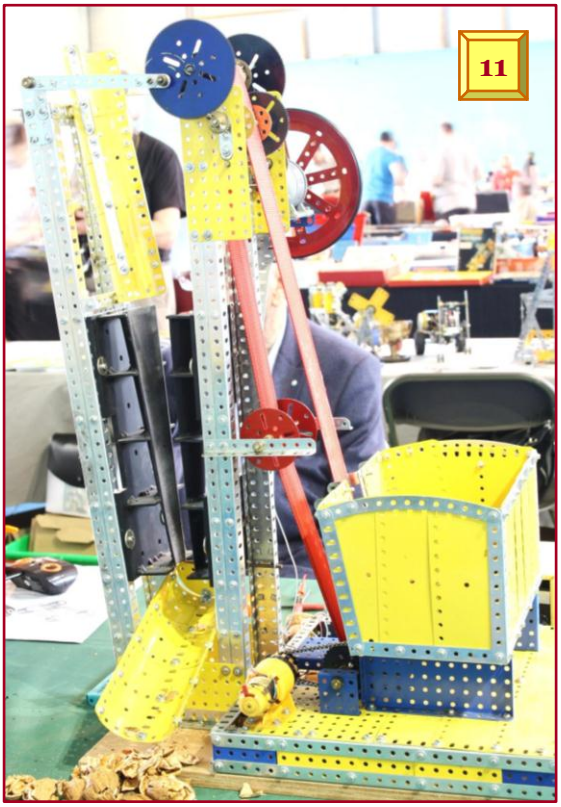
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7. The theme of CAM's 44th exposition was aviation (not Magicians) which, unsurprisingly, brought forth models of some peculiar flying machines with varying levels of effectiveness. **Jean-François Nauroy's** offering had to be the wackiest and least airworthy of the lot. (RM)

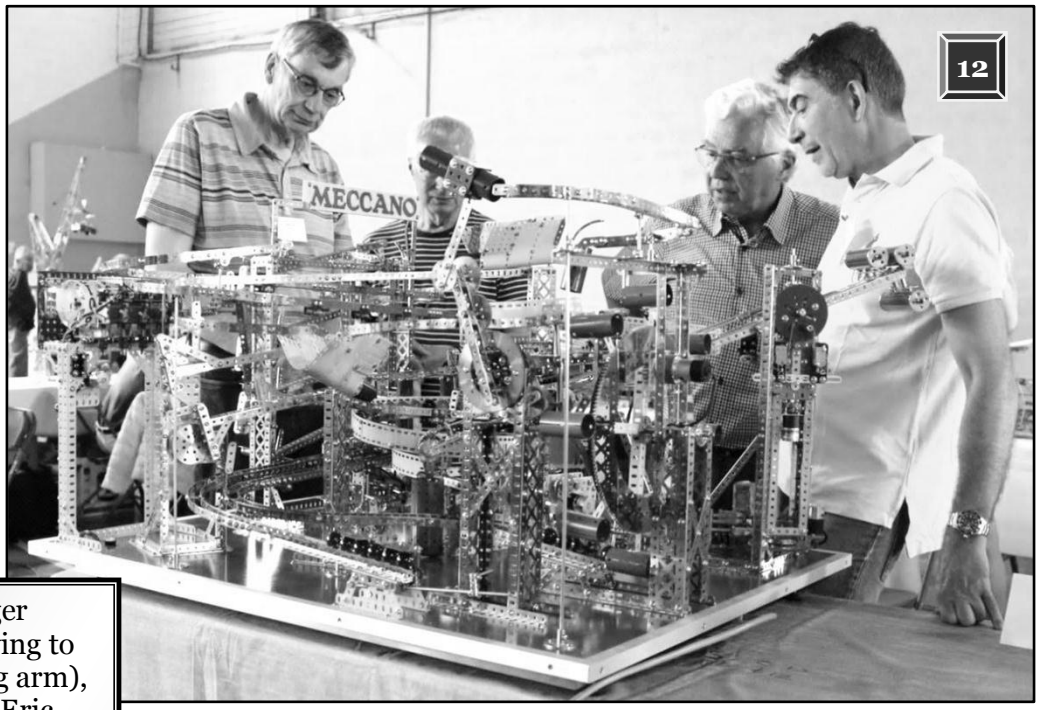
8. Anick Quibeuf was the first of many friendly faces we met on arrival at Espace Associatif des Doucettes. We later found that he had tackled the influential Alan Partridge ball roller. (RM)

9. Covered with a huge number of silver Flexible Plates, this is the front end of a large-scale Lancaster bomber, posed with its bomb bay doors open and built by **Christophe Dodeyne**. Unsurprisingly, his efforts were rewarded in the annual CAM prizes. (RM)

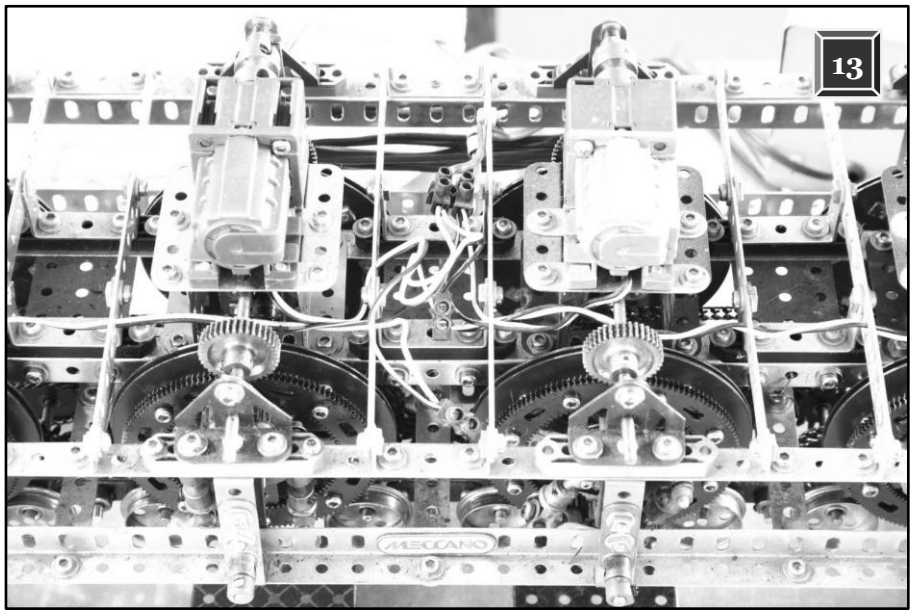
10. Bernard Guittard spent his working life at Citroën so knows his way around their products. This is the engine compartment of his large-scale 2CV. (RM)

11. *En route* to the 43rd exposition at Calais, my human travelling companions were informed to expect a different approach to Meccano in France and here's an example from Garges-lès-Gonesse - **André Chapel's** walnut splitter. The nuts are lifted one at a time from the hopper on the right then dropped one at a time into a jaw crusher, the intact kernel then separated from the debris. Doubled boss fixings and worn Pinions were evidence of much torque. (RM)

The UK contingent was a little reduced on previous years and didn't feature at all in the top five places awarded by voting for each of three sections; one was a previous winner (*Top Buzz* by Michael Molden) and, ahem, the rest had also been there before - including me. The categories were for CAM's junior members, models made for the aviation *leitmotif* (which didn't embrace aircraft only, as our Ed's picture selection shows) and others (which will have encompassed Magicians). Amazingly, the Luxembourg entry also went home empty-handed! Announced on the Saturday morning by Maeva Azaïs then Bernard Guittard (CAM's President), the top senior places were:



12. Left to right are Roger Thorpe, Terry Allen (trying to hide behind an elevating arm), Jean-Louis Canavy and Eric Champleboux. Slicing through the language barrier with Meccano, **Eric** is treating them to a tour of his heavy-duty and mindboggling marble rolling machine which incorporated lots of clever mechanisms (cleverer than my own!) and optical colour sorting; it was featured in CQ116. (J-FN)



13. Another look at the peculiar Buchli transmission, this time showing the 1⅛" Flanged Wheels running on the rails. It was built by the late **Alain Legrande** and now is owned by Jean Pierre Greiner. (RM)

A different angle on Garges-lès-Gonesse

14. Bernard Droux turned his hand (and Screwdriver) to a colourful automated funicular railway; this is the bottom 'station' and it earned him fourth place in the 'free' category. (RM)

15. Philippe Baudeau also joined in the aviation theme and these were even stranger than Jean-François' contraption. The story is that a nineteenth-century entomologist was inspired by papillon (butterflies) to build his own flying machine which would stay aloft by four flapping wings, his own limbs providing the necessary power via a system of levers while he faced rearwards. (RM)

16. Predictably, the entomologist's initial airborne aspirations stalled in the power-to-weight and aerodynamic departments so he built another, this time with a new-fangled engine for propulsion and staying aloft, still with flapping wings or, in this case, a single wing. Other advances included an all-enclosed cockpit in which he and the navigator - with a joystick - could join the birds in comfort. Philippe said this one didn't work either but he was rewarded with second place in the theme. (RM)

17. Michel Brèal is one of CAM's stalwarts and again showed his reworked SML4 Blocksetter, the one that created a stir last year when it looked like it would become one of those partworks that begin in early January at a bargain price then undergo steep rises when the hapless buyers have passed the point of no return. Although the scheme has so far come to naught, the escapade certainly caught the imagination of the armchair instant partwork specialists! Michel's redesign was aimed at using no part longer than a 12½" Angle Girder. (RM)

Aviation theme

Third: **Christophe Dondeyne**, Lancaster bomber.
Second: **Philippe Baudeau**, flying machines.
First: **Jean-Marie Jacquel**, Latécoère 28 aeroplane.

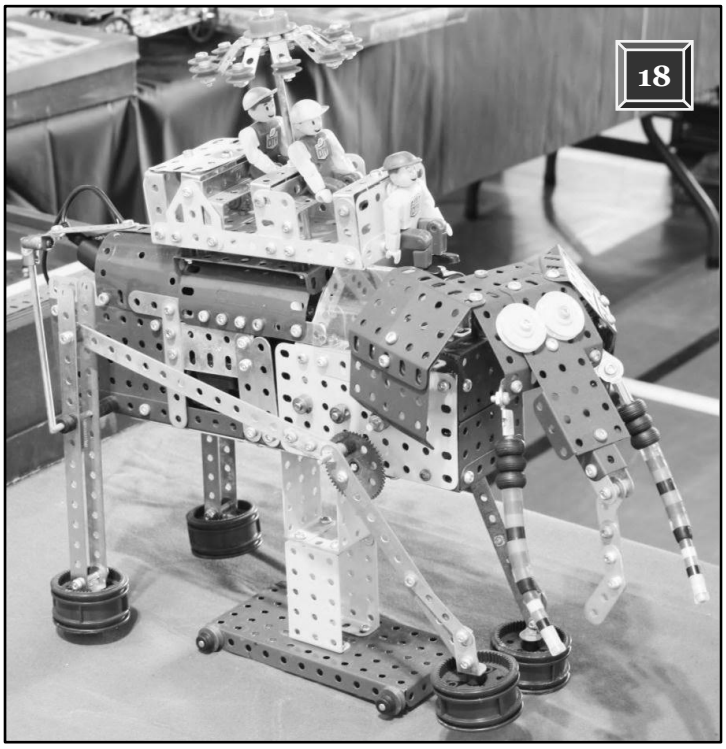
Free category

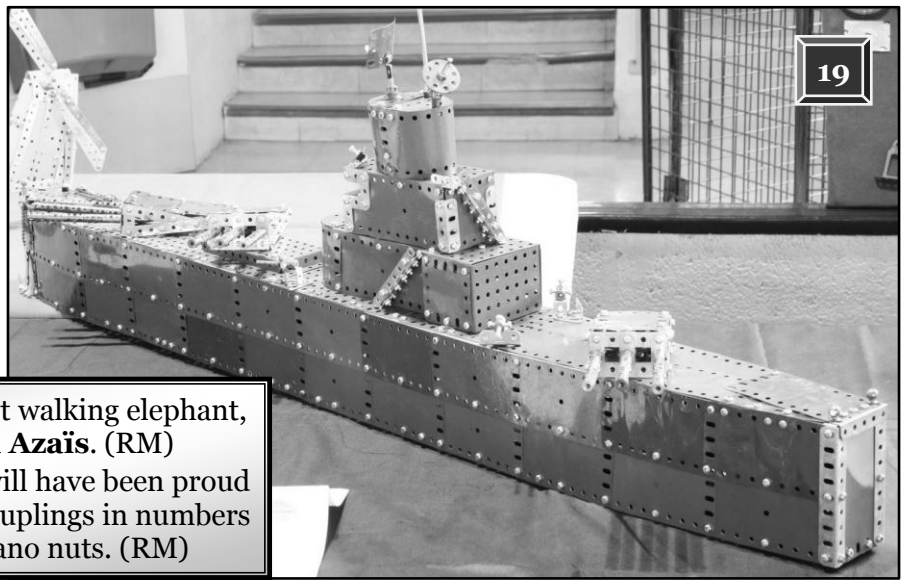
Third: **Jean-Louis Canavy**, Brussels 'Atomium' building.
Second: **Jacques Tarratre**, giant crane of Bordeaux.
First: **Jean-Jacques Cavallaro**, the sailing ship *Pourquoi Pas*.

This is my first attempt at reporting an event so please excuse any literary wrongdoings. Not bad considering my ferrous stylised hands are always clasped around margarine tubs, eh?

Michael (the Magician)

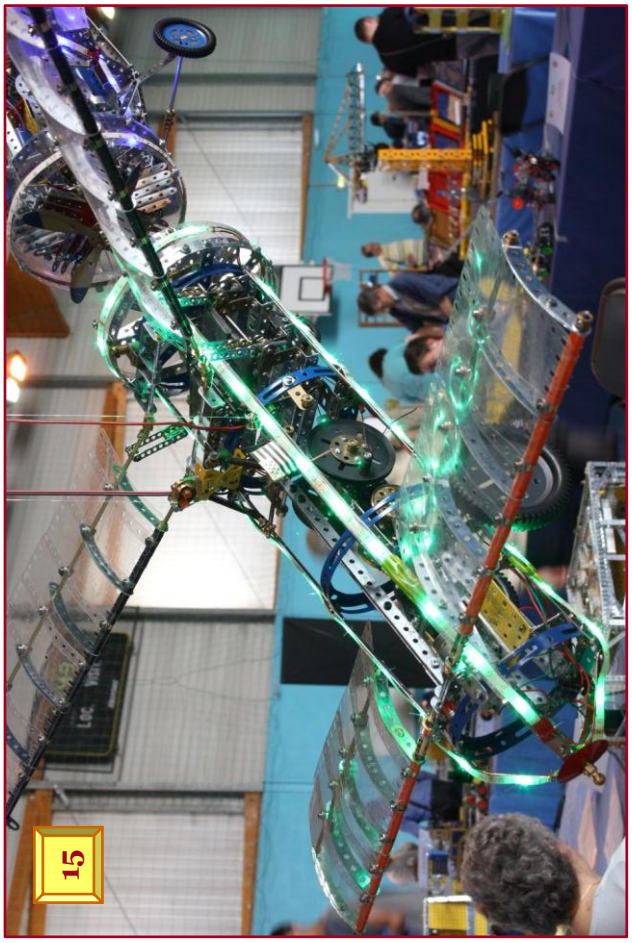
Ed. Thanks Michael! We must recognise freely-given assistance from Jean-François Nauroy, especially considering that he also produces CAM's superb magazine; the 139th edition has an extensive pictorial record of Garges. Particulars for the 45th exposition have been announced as 10th - 12th May 2018 at Larmor-Plage 56560, Brittany. Organised by Philippe Baudeau, the theme is to be 'solar power, harbours and ships'. Before then, further Garges pictures can be found on the rear cover. *RM*





18. The popular early 2000s Outfit walking elephant, enlarged and enhanced by **Maeva Azaïs**. (RM)

19. Aged ten, **Maxime Laviale** will have been proud of his blue battleship. Guns are Couplings in numbers undreamed of even by older Meccano nuts. (RM)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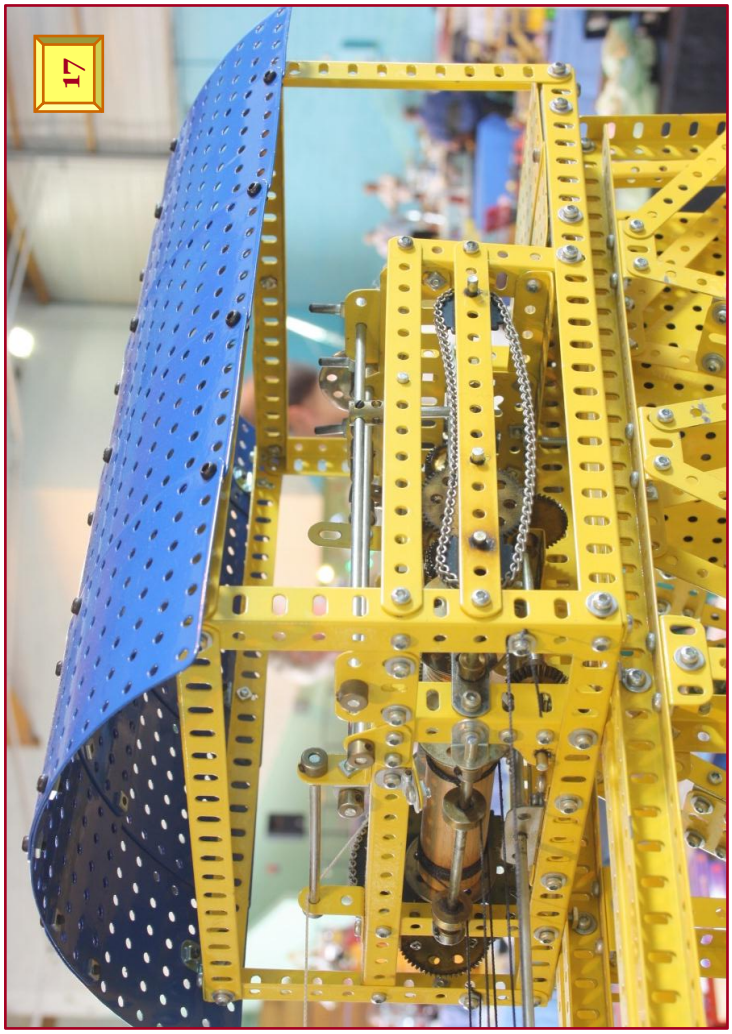
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The Meccano Model-Building Club Chronicles

Transcribed from Ron Pitches' notes with ephemera by Mick Burgess
Part 2: October 1949 to November 1951

Our First Meccano Fair, October 1949

In October 1949, we held our first combined effort since the jumble sale the previous year. The five of us still in the Club, who were Roy, Roger, Barry, Norman and I, decided to hold a 'Meccano Fair'.

In the fortnight or so preceding the event we were all busy on our models. Barry constructed a gigantic Roundabout which was a fine model but completely out of proportion with anything else. Norman made swings and I believe sideshows, for which his Motor was not required. Roy made a Cake Walk which was a good model but worked rather too fast. My model was the only successful one. I attempted to build an Octopus and it was only after a great deal of bother and the use of Norman's Motor as well as my own that I finally got the mechanism right. Unfortunately even then I found that the arms were too flexible and did not rise and fall as the eccentric turned.

All the models except mine were arranged in Barry's front room on the floor. I believe that Ian, a boy who lived nearby, also brought a model to Barry's house and set this out with the rest. A Roundabout built by Roger completed the fairground scene. Barry used a transformer to supply electricity to flash-lamp bulbs on his model, the swings and the Cake Walk. I think Roger lit his model with lights using his own transformer. To make the lights of the Fair more effective the curtains were drawn but even so a certain amount of daylight shone through the chinks in the curtain.

The Fair was the last event for some time and afterwards Roy left the Club.

➔ According to the print code of 13/449/72, this early postwar catalogue is from April 1949.

Our Summer Fêtes, October 1949 to September 1951

From November 1949 until July 1950, the remaining four of us were hardly aware of the existence of the Meccano Club, although we still remained very good friends. Throughout the winter I was particularly friendly with Roy, Ian and a school friend David and we used to have interesting meetings. David and I used to visit Crease Park sometimes on account of two girls often there - we were twelve and the girls only eleven! During the summer months I went to Crease Park more regularly with Roger; but this time our chief interest was in tree-climbing.

In July 1950 we again became interested in model-building and by the following month Barry, Norman, Roger and I had decided to build a Meccano Fête. This took place on Wednesday 9th August 1950 and on the preceding day or so we prepared several invitations to give to boys along the road.

The main attractions were four Meccano penny-in-the-slot machines, one model made by each of us. Barry made a bagatelle game and Norman and Roger made matchbox machines. I constructed a machine in which a pointer indicated a win or a lose on a

← Meccano Ltd's construction system appears to be an addendum in the range shown on this catalogue's cover. Dated October 1949 (code 13/1049/150) and bearing a dealer's stamp of F. Watling, it was contemporary with Ron's opening chapters.

revolving disc. There were several side attractions. One such attraction involved attempting to retrieve a threepenny bit dropped into a bucket of water for the price of one penny per attempt. The bucket was wired to one terminal of a shocking-coil and the 'victim' held the second terminal in his other hand as he tried his luck. Two people out of about ten were successful. A treasure hunt, puppet show and a 'run round the block on a trolley' completed the Fête.

Barry's two sisters, Rita and Audrey, were allowed to help and Rita was given a position behind the 'cash desk' which consisted of a work bench piled high with about ten shillings-worth of coppers. One side of her table was piled up with 'prizes' which were books and toys that we had finished with.

The Fête was a great success and was thoroughly enjoyed by everyone. We made about five shillings and this sum was divided between us. We gave Rita a small portion for her 'duties'. Owing to the popularity of the event, we decided to hold another Fête the following March. The September Fête was an even greater success for all the models were far better. Roger and I both made the same models as we did before though each machine was sounder in construction. Norman made an Aunt Sally and Barry constructed a fine standing model of a Fruit Machine. The latter was worked by pulling a lever (after placing a penny in the slot) which caused three wheels to revolve. If they all stopped with the same colour in each 'window' a prize of threepence was won. Again there were a number of side attractions but these were more-or-less the same as before.

The profits of the September Fête, 6s 0d, were this time kept until the next exhibition to help with the cost of presentation. Actually this exhibition did not take place for over a year for by now none of us spent so much time over building models as we did in the first two years of the Club (1948-49). However, our display - the second Meccano Fair - is so important (for us, anyway) that I think it deserves an article to itself.

Meccano Fair, 1951

Perhaps the main reason for our not having an exhibition of some sort for so long (September 1950 to September 1951) was that neither Barry, Norman, Roger nor I possessed an electric motor with which we could drive our models nor had we the money to buy such an expensive item.

It was really quite by chance that we obtained one. During September 1951, Barry (or his parents) were given an old dictaphone which had somehow been put out of action and could not readily have been mended. However, the dictaphone had several useful parts on it which were undamaged - amongst them were a speaking tube, mains current rheostat and, best of all, an electric motor of some power. Barry soon screwed the motor on to a suitable piece of wood and, using Meccano parts, constructed Worm reduction gearing. Then we decided to build a frame or baseboard on which to stand our models for exhibitions.

This was when the six shillings and a few odd coppers which we had saved from the

PRICES INCLUDE PURCHASE TAX — OCTOBER 1949

MECCANO

Real Engineering in Miniature

Meccano is a system of interchangeable parts—strips plates, gears, wheels, nuts and bolts, etc., with which any boy can build hundreds of magnificent models that work just like the "real thing."

Meccano Outfit No. 4

MECCANO COMPLETE OUTFITS

		Each
No. O	Meccano Outfit	5/9
No. 1	Meccano Outfit	9/6
No. 2	Meccano Outfit	12/6
No. 3	Meccano Outfit	18/–
No. 4	Meccano Outfit	25/–
No. 5	Meccano Outfit	34/–
No. 6	Meccano Outfit	44/–
No. 7	Meccano Outfit	65/–
No. 8	Meccano Outfit	115/–
No. 9	Meccano Outfit (Carton)	170/–
No. 10	Meccano Outfit (Cabinet)	*
Meccano Gears Outfit "A"		9/6

MECCANO ACCESSORY OUTFITS

Each Meccano Outfit can be converted into the one next larger by means of an Accessory Outfit. A No. O Outfit can be converted into a No. 1 by adding to it a No. Oa Accessory Outfit, and a No. 1a would then convert it into a No. 2. In this way, no matter with which Outfit a boy begins, he can build it up by degrees until he has all the parts contained in the largest Outfit.

			Each
Meccano Accessory Outfit No.	Oa	converts Outfit No. O into Outfit No. 1	3/9
" " " "	1a	" " 1 " " 2	3/6
" " " "	2a	" " 2 " " 3	6/–
" " " "	3a	" " 3 " " 4	7/9
" " " "	4a	" " 4 " " 5	10/–
" " " "	5a	" " 5 " " 6	10/–
" " " "	6a	" " 6 " " 7	21/–
" " " "	7a	" " 7 " " 8	50/–
" " " "	8a	" " 8 " " 9	45/–
" " " "	9a	" " 9 " " 10	*

MECCANO MOTORS

MECCANO *MAGIC* MOTOR (*non-reversing*)	5/–
MECCANO CLOCKWORK MOTOR No. 1 (reversing)	12/3
MECCANO CLOCKWORK MOTOR No. 2 (reversing)	16/3
No. E06 ELECTRIC MOTOR (6-volt non-reversing)	13/6
No. E020 ELECTRIC MOTOR (20-volt non-reversing)	13/6
No. E20R ELECTRIC MOTOR (20-volt reversing)	28/9
No. T20 TRANSFORMER (No Tax)	31/6

A working model built with Meccano.

Meccano products are obtainable only from Meccano Dealers

REVISED PRICES INCLUDING PURCHASE TAX — 1st FEBRUARY 1950

MECCANO

Meccano Hours are Happy Hours

A THOUSAND TOYS IN ONE

Building a model that really works is the greatest fun in the world. With Meccano any boy can build one working model after another, taking each to pieces and using the same parts to build something entirely different. No ready-made toy can give such pleasure.

MECCANO COMPLETE OUTFITS

		Each
No. O	Meccano Outfit	6/9
No. 1	Meccano Outfit	10/6
No. 2	Meccano Outfit	14/–
No. 3	Meccano Outfit	20/–
No. 4	Meccano Outfit	28/9
No. 5	Meccano Outfit	41/3
No. 6	Meccano Outfit	52/–
No. 7	Meccano Outfit	77/–
No. 8	Meccano Outfit	137/6
No. 9	Meccano Outfit (Carton)	200/–

MECCANO ACCESSORY OUTFITS

Each Meccano Outfit can be converted into the one next larger by means of an Accessory Outfit. A No. O Outfit can be converted into a No. 1 by adding to it a No. Oa Accessory Outfit, and a No. 1a would then convert it into a No. 2. In this way, no matter with which Outfit a boy begins, he can build it up by degrees until he has all the parts contained in the largest Outfit.

Meccano Accessory Outfits

				Each
No.	Oa	converts No. O	into No. 1	3/9
"	1a	" " 1	" " 2	4/6
"	2a	" " 2	" " 3	8/–
"	3a	" " 3	" " 4	10/9
"	4a	" " 4	" " 5	14/6
"	5a	" " 5	" " 6	10/9
"	6a	" " 6	" " 7	25/–
"	7a	" " 7	" " 8	60/6
"	8a	" " 8	" " 9	57/6

MECCANO GEARS OUTFIT 'A'

The new Meccano Gears Outfit 'A' has been specially designed for owners of the smaller standard Meccano Outfits which do not include gears. Each 10/6

Meccano Outfit No. 4

MECCANO MOTORS

MECCANO *MAGIC* MOTOR (non-reversing)	5/9
MECCANO CLOCKWORK MOTOR No. 1 (reversing)	14/6
No. E20R ELECTRIC MOTOR (20-volt reversing)	31/6
No. T20 TRANSFORMER (No Tax)	37/–

Meccano Gears Outfit 'A'

Meccano Magic Motor

No. 1 Clockwork Motor

Meccano products are obtainable only from Meccano Dealers

↑ Inside the same October 1949 brochure and we find 'Meccano Boy' has been transplanted from April. Although Mick wrote *Not much colour during this period so most paperwork is low key but still interesting*, the inner pages were produced in bright purple. Note that a Gears Outfit 'A' is listed, the 'A' suggesting a 'B', with the as yet unavailable Keyway Rod and matching Bolt, was intended.

↗ Come February 1950 and a steep price rise had been applied, the No. 9 from 170/- to 200/- (£10): almost 18%! The No. 10, unpriced in 1949, has vanished. In a lesson about inflation, the 6/- profits from the September 1951 Fête would have bought the lads a No. 0 Outfit with 3d as change in late 1949 but a few months later it would have covered - just - the cost of a Magic Motor. Print code 16/250/100.

Meccano Fête of September 1950 came in very useful. The four of us made an expedition to a timber yard by Penge West Station, about three miles away and after a bit of bargaining, we bought several lengths of wood for the framework at a price which we could afford. With the strips of wood across our shoulders, we marched home along the edge of the road, much to the annoyance of other road-users.

Our first display was planned to be a Meccano Fair. During October and early November we assembled the frame at Barry's house. The strips were cut to form a rectangle of size five feet by four with several strips across the middle; the whole was then covered with wall-paper. At the same time we busied ourselves making our models. By now we had each added so many parts to the No. 4 Outfits that between us we had almost the equivalent of four No. 8 Outfits. Barry's model was the Big Wheel, a model which he was fond of making and consequently was very neat and quite impressive. His brother, with a slightly smaller Meccano Outfit, constructed a very successful model of the Chair-o-Planes. We greatly praised Roger for his fine Octopus

model which had many people guessing at its construction. It was smaller than the Octopus I attempted to make for the Meccano Fair 1949 but it was far neater, needed only one motor to drive it and worked exactly the same as the real machines. Moreover, Roger was the only one of us who thought of having revolving lights on his machine by the use of a device called a 'rub-contact'. The model which I built was the Whip Roundabout and this, like the rest, was quite effective. Four cars thundered round a Meccano-made track and swung this way and that as the eccentric turned. The only drawback encountered with the model was that a rather large amount of power was required to make the cars 'whip' round and though the motor was capable of driving the model, we decided (when the Fair was held at my house) to turn the model by hand.

↑ The first two photos from the Meccano Model-Building Club's album. Ron's dad took these patriotic pictures of the second Meccano Fair, October-November 1951. In the top photo are Barry's Big Wheel and his brother Norman's Chair-o-Planes, the former model taking its drive from a dictaphone motor secured below the stand made by the four pals. Roger's Octopus is left of centre in the lower picture.

Norman's and Roger's models were connected to the motor by means of belts passing from the mechanism on the motor (which was screwed on to a corner of the frame) to the driven shaft on the models. Barry's Big Wheel was screwed to the farther side of the frame and the drive to it was carried by Gears, belts and Chains underneath the baseboard. The 'whip', until the drive was disconnected, was driven by a Sprocket Chain above the frame from the motor.

handy - was produced and we collected a sum of between four and five shillings. We expressed our gratitude to those people who so kindly helped us towards the cost of building the Meccano Fair, 1951.

The Winter Fête, 1951

Five or six weeks after holding our greatly successful Meccano Fair, Barry, Norman and Roger decided to build models for a Winter Fête which was held during November 1951. Unfortunately, my Father asked me to make a model for Christmas time so I was unable to help in the Winter Fête.

↑ August 1951 (print code 16.851.100) had further large price hikes, the Magic Motor by 25% from 5/9 to 7/2. The 'Meccano' typeface has changed; it would retain this style until the end of Liverpool production. Regulation Meccano Boy attire is still a tie and knitted tank-top!

To make the Fair even more realistic, we each constructed sideshows of various descriptions. Of these, a Coconut Shy which I constructed out of my remaining Meccano parts, a piece of pyjama cloth and some Plasticine, was most effective; and indeed one young visitor to our Fair preferred this model to the fun-fair machines.

The Meccano Fair was held at each of our houses in turn: first at Barry's house; then at Roger's house and lastly at mine. For each performance - we held one at each of our houses - we had a definite order of procedure. Unfortunately until we found a torch, visitors had to find their seats in the dark as we did not wish visitors to see the fair until the performance commenced. When the guests were safely in their seats the models' lights were switched on, a group of lights at a time. Then the motor started and the clutches on the models were engaged. Thus the show commenced.

When the Fair was shown at my house, we were greatly touched when the visitors asked us to pass a box round to show their appreciation. The Club Funds Box - always

The Fête was held on an evening during our Christmas holidays in Roger's front room. The frame was raised to a more suitable height (from the usual 22 in. to above 3 ft. 6 in.) and this time only parts of it were covered with wall-paper. A small control panel was fitted up in a space for the controller in the middle of the frame.

Along one of the shorter sides of the frame, Barry's model was fixed. This was a Hockey Game in which a ball was hit from one player to the other. Five balls were released, one after the other, for the price of one penny. These were each played in turn and the player who scored the greatest number of goals was the winner. The pitch was surfaced with white cardboard and a piece of transparent paper was stretched over it. The only trouble Barry had with the game was that the balls became caught in a certain position every so often. The ball was released again by means of a 'prodder' which could be pushed in from either side.

Norman's model was the simplest and probably the most successful of the three models. His was a Fortune-Telling machine consisting of a disc which was revolved by an electric motor working off a three-volt cycle battery. On placing a penny in the slot, the bridge was formed between an extensible rod and an electrical contact which started the motor. The motor was stopped by pulling out

the rod, which caused the penny to move away as well. A pointer on the disc indicated what one's fortune was to be.

On the other hand, Roger's model was by far the most complicated but was, nonetheless, a great success. His machine consisted of a rotating table on which were a number of matchboxes. On inserting one penny, an arm moved away from the centre of the disc and, with luck, knocked a matchbox off the table into a chute, whereupon the arm went back to its original position. This model was the only one to be driven by the large electric motor.

Though the three models were all successful and definitely better than those which we had built in August and September 1950, the Fête was not so popular. Only two or three of Roger's neighbours came (out of many other people who were invited) and the Club funds were increased by the small sum of three pence though we had hoped for more profit than this as our funds were very low.

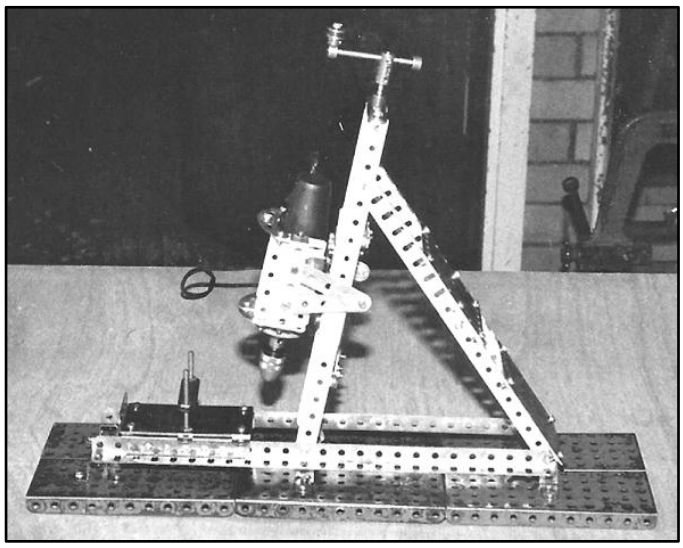
This was the last event for 1951.

Ron Pitches

To be continued.

Your Own Early Meccano Days

An appropriate tailpiece to Ron Pitches' exploits is this proposal from John Sinton: what's your earliest Meccano picture? It wasn't an idle thought as John provided the picture below from an undisclosed year when he was an also-undisclosed age. Compared with the picture on page 59 in SMGJ128, he hasn't changed at all. Your Ed's equivalent doesn't include the builder (which is probably for the best) and is from about 1983. To explain, it was actually made for a friend on the same 'A' Level Engineering Metalwork course; each student had to make a working object and he had decided on a model pulse jet engine - really! Your Ed played safe with a baby steam engine from a set of raw castings. One of the jet's critical components, a central fuel injector made from brass, needed some small (from memory, 0.5 mm) radial holes which had to be a few degrees from the vertical. Setting the workshop machinery was complicated, especially with a tiny cutter. An easier way was a bespoke rig so one was made from Meccano using some of the parts from a 'Hyperspace' set - a right load of rubbish acquired a little earlier from a local hardware shop - then equipped with a model-maker's drill, below. The backstays were connected by Erector 3" square plates, the injector clamped to a bespoke sliding plate and the drill was fed by a Screwed Rod topped with a dapper handle. Surprisingly, it did the job. When firmly clamped in a vice, the part-made engine never worked despite copious volumes of cellulose thinners as fuel and the occasional flaming 'whoomph' which, again, was probably for the best. Having digressed, John's intention was to elicit early pictures of builder with model so have a rummage and send to the editorial address, page 2. *RM*



Revised Figure-of-Eight Flat-Braid Braiding Machine

By Graham Jost

Some time ago I thought it would be worthwhile to revamp my 2012 Figure-of-Eight braider to operate with more spools, and thereby produce, perhaps, a more effective braid: the muted enthusiasm from SWMBO for the modest quality of braid being produced by this machine also played a part in my decision. So, as it is relatively large, a straightforward replacement of the present carriers with a type to accommodate more spools in circulation seemed a straightforward proposition and the idea progressed.

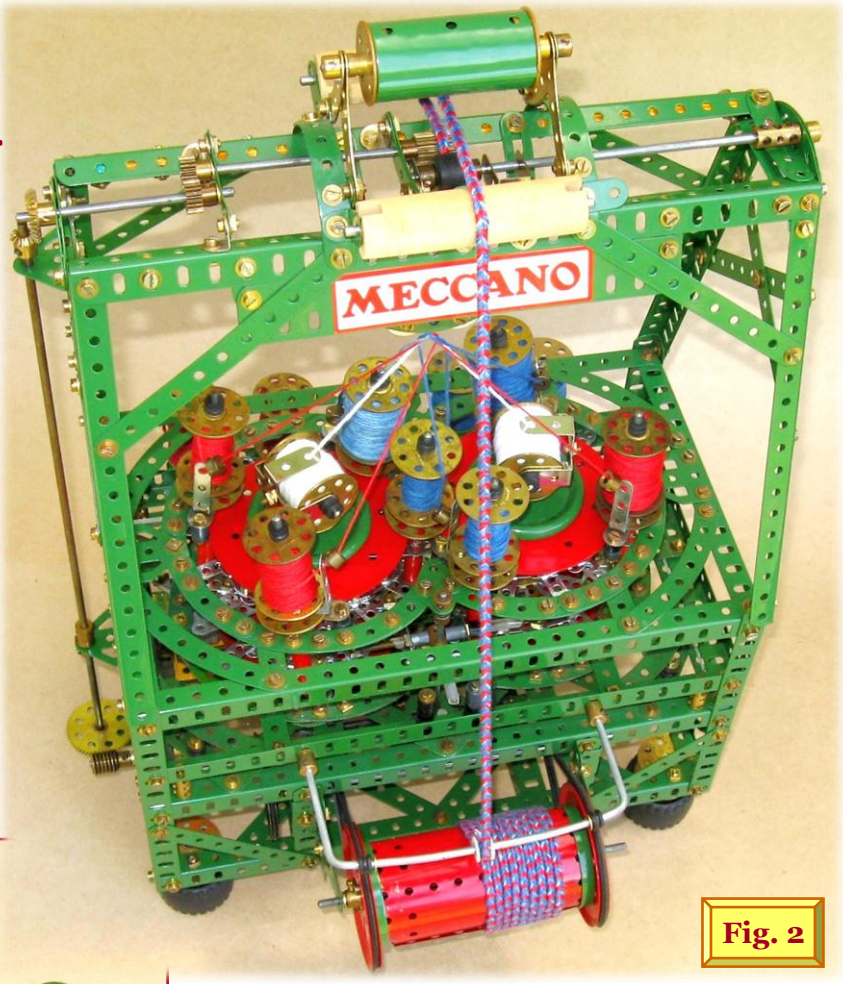


Fig. 2

Fig. 1

My original machine, **Fig. 1**, was described in SMGJ115 for October 2012; the new one is shown in **Fig. 2**. This article outlines the changes made to the original braider - it is not a stand-alone article.

Each carrier in the original machine was equipped with five forks, mounted on Exacto five-hole Face Plates, and the machine circulated five spools of thread. In a figure-of-eight layout, each carrier must have an odd number of forks in order to avoid spools clashing as they switch carriers. So the next step was to build carriers with seven forks and this immediately presented a problem, as seven-fold symmetry in Meccano is not to be found! A call to 'Spanner' for help was answered by Simon Moody in New Zealand who offered some seven-hole Bush Wheels he had once machined. I took Simon up on his kind offer and this rebuilt braider is the result.

A mock-up of one seven-fork carrier plate is shown in

Fig. 1. The original 2012 Figure-of-Eight Braiding Machine.
Fig. 2. Present Figure-of-Eight Braiding Machine.
Fig. 3. Seven-fork carrier plate mock-up.
Fig. 4. Seven-fork carrier.
Fig. 5. Shortened waggler.
Fig. 6. Deck, carriers and spool assembly mock-ups.
Pictures by Graham.

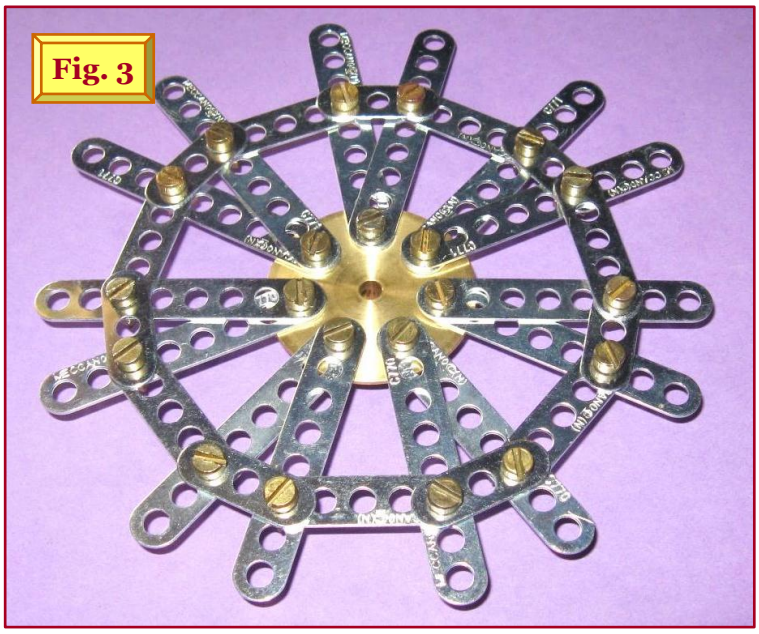


Fig. 3

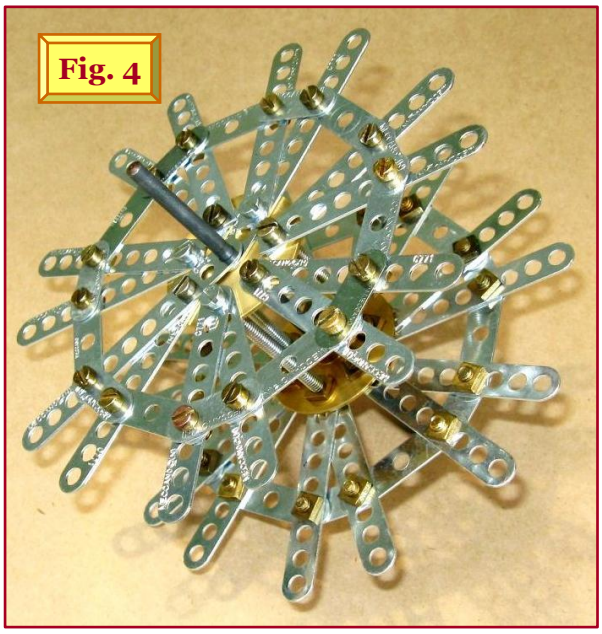


Fig. 4

Fig. 3, and a complete carrier in **Fig. 4**. A shortage of the necessary nine-hole radial strips was resolved by severing several longer strips from an Eiffel Tower set. The assembly of strips attached to each Bush Wheel is stabilised by having two of the fourteen Strips extending to the centre/boss hole, where the axle locks them, and hence the remaining construction, in place.

Having completed both carriers, it was then a matter of removing, from the original braider, the upper

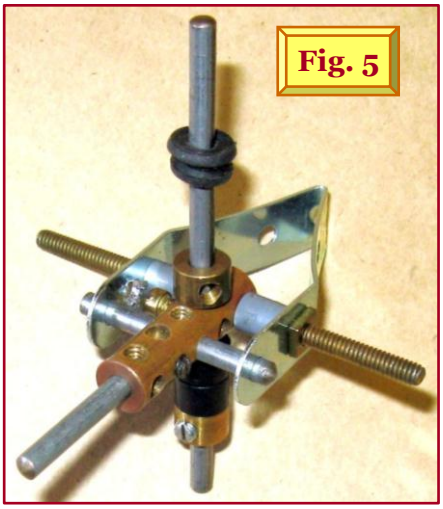


Fig. 5

structure, the top track and the carriers. The new carriers were then added and checked for clash-free freedom of rotation. Before replacing the top track, representative spool assemblies were added and the whole checked for smooth running. Ah-ha, a problem immediately showed up - the prong on the original switching waggler was too long. This was understandable, as the forks on the new carriers were now closer together than they had been and

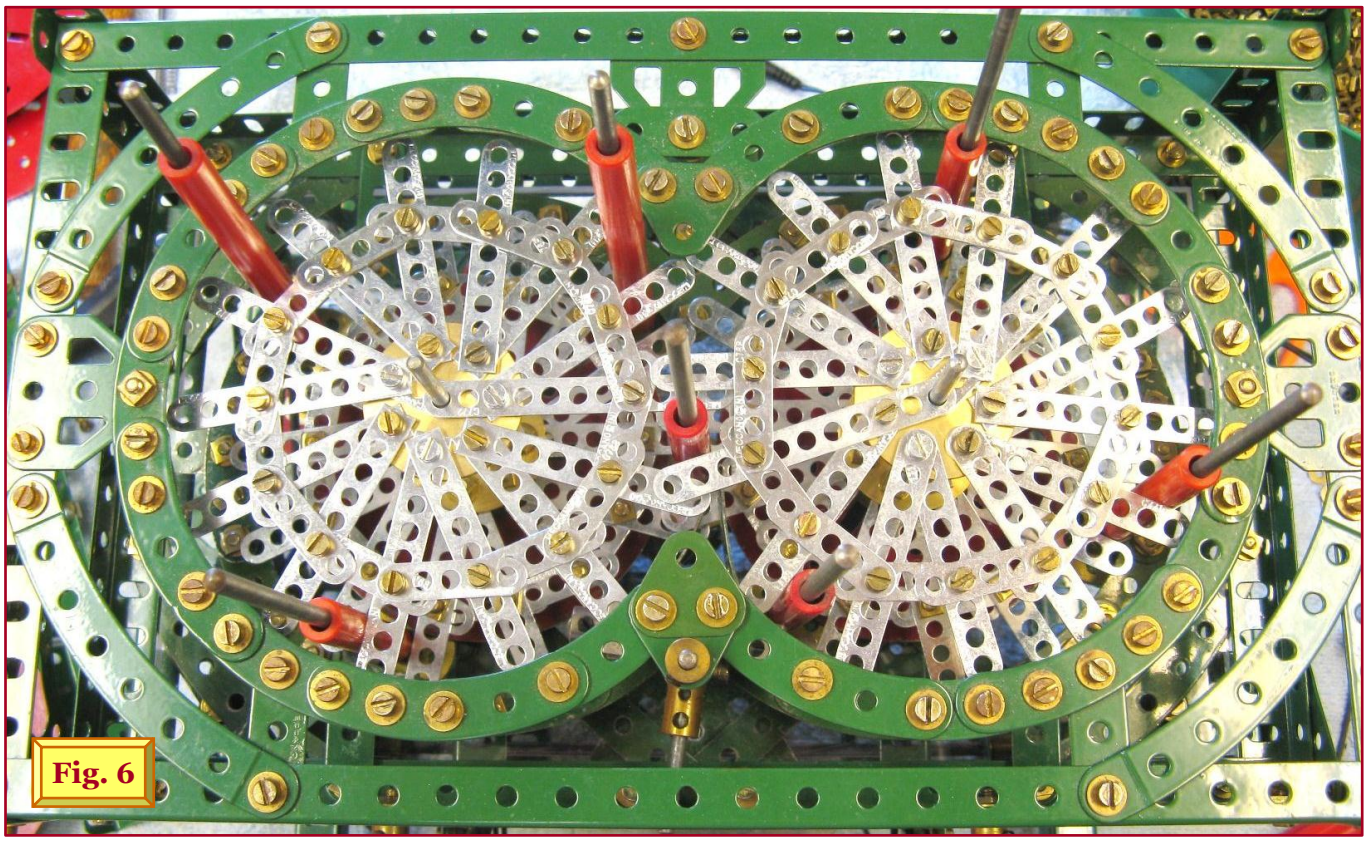


Fig. 6

spool assemblies were arriving before the waggler prong had had a chance to switch as required. A new waggler with a shorter prong was necessitated, **Fig. 5**. This took longer to effect than can be described here, and included a slight rearrangement of the forks' details too, but eventually all was well, and dummy spool assemblies now circulated freely and reliably as required, **Fig. 6**. The top track was then refitted.

There's nothing like rebuilding a model to see where improvements can be made - the spool assemblies themselves were the next target! The originals had incorporated both top exiting and tensioning of the thread. But I observed that, as had been the case with an earlier braider, it would be possible here to have threads exiting from a point about halfway up the vertical spools, with the advantage of exerting significantly less sideways load on the assemblies as the thread is drawn off. I had already found that tensioning made little or no difference to the completed braid, so it was done away with. A new spool assembly is shown in **Fig. 7**. The downward-facing pair of plastic Spacers form a follower to run in the upper track and maintain the orientation of thread exiting point on its bespoke prong as the assembly circulates.

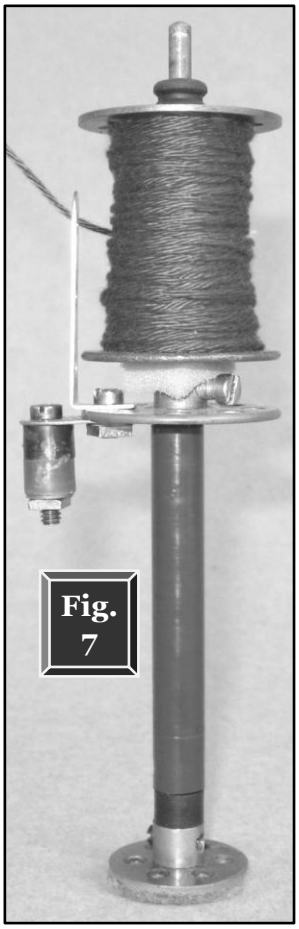
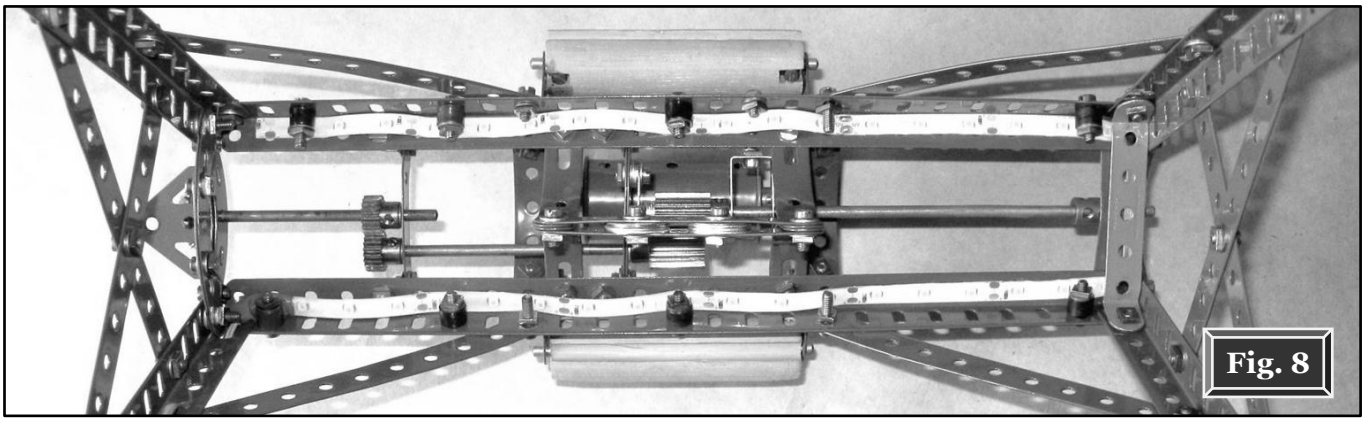
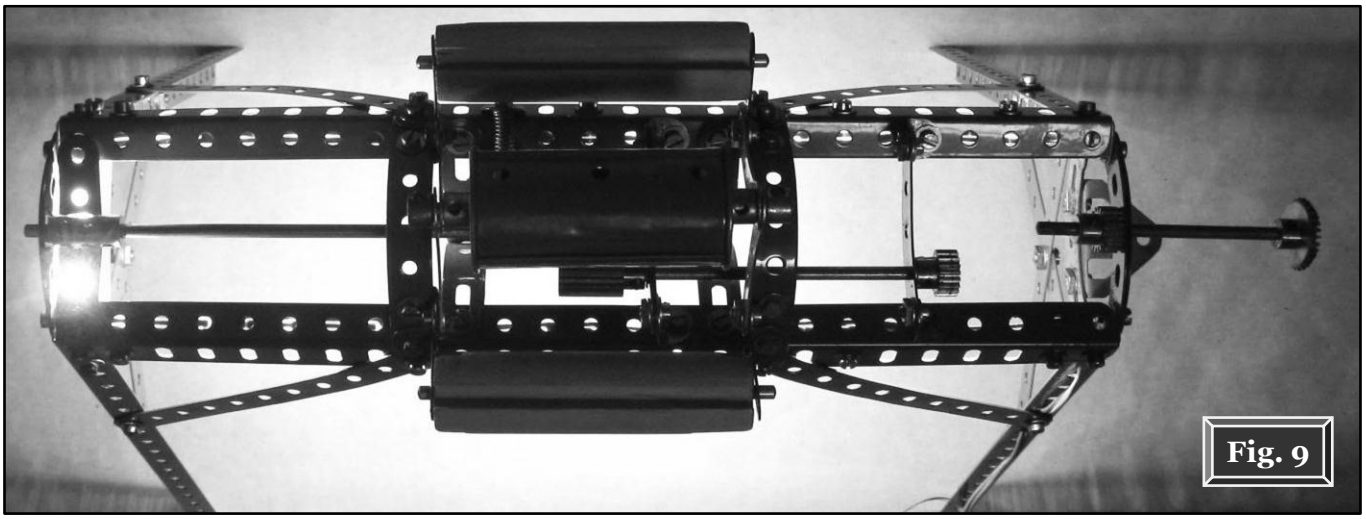


Fig. 7. Spool assembly complete.
Fig. 8. LED strip lighting installation.
Fig. 9. LED strip lighting effectiveness.
Fig. 10. Braiding region and lowered braiding ferrule. Compared to Figs. 2, 8 & 9, the sharp-eyed may notice a redesigned ferrule.
Fig. 11. Stored braid on the take-up roller.
Fig. 12. Braider at work with the original ferrule!

The final step was to refit the overhead structure. Noting that its original LED lighting could be improved, simply by doubling the length of strip installed, an extra length was added. **Figs. 8 & 9** show the installation, and the benefit, respectively.

Now it was a case of threading up all seven circulating spools plus the single spools atop each carrier, and switching on. Perfect! Well not quite: the thread exiting points on the spool assemblies were now some 2" below where they had been on the original





braider, yet the threads were still being brought together at the original ferrule height. The braid was now too loose and it was necessary to lower the ferrule to increase the angle at which the threads came together to tighten the braid. The new lowered mounting is shown in **Fig. 10**. *Now* the braid was being formed satisfactorily, and is actually the tightest braid from any of my machines, **Fig. 11**. The additional threads have certainly helped!

Fig. 10

This braider was trialled for the first time at the two-day Colac Heritage Festival in February this year, where it performed faultlessly, **Fig. 12**. I am delighted with it, and the improvement in the quality of its braid over that from the original Figure-of-Eight machine is impressive. Even SWMBO is happy with it now :)

Stills and movies can be seen on the NZ website:

www.nzmeccano.com/image-109478

Graham Jost

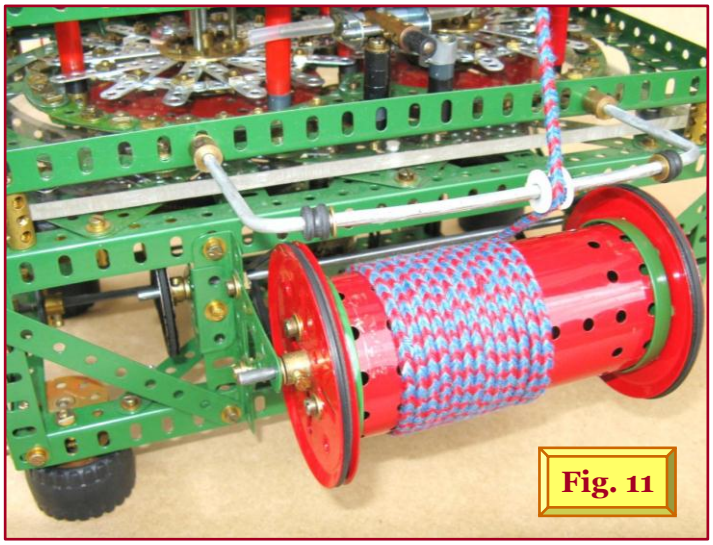


Fig. 11

Fig. 12

Coming up in SMGJ131

SMG October club day at Laughton

Brunton's Steam Horse by Ken Ashton

***Steam Power for Industry* Part 3**

SMG April Antics 2018 - what is it to be?

A look at some year-end exhibitions

The 'Magician's' turntable

Joseph Whitworth: Frank Hornby's hero?

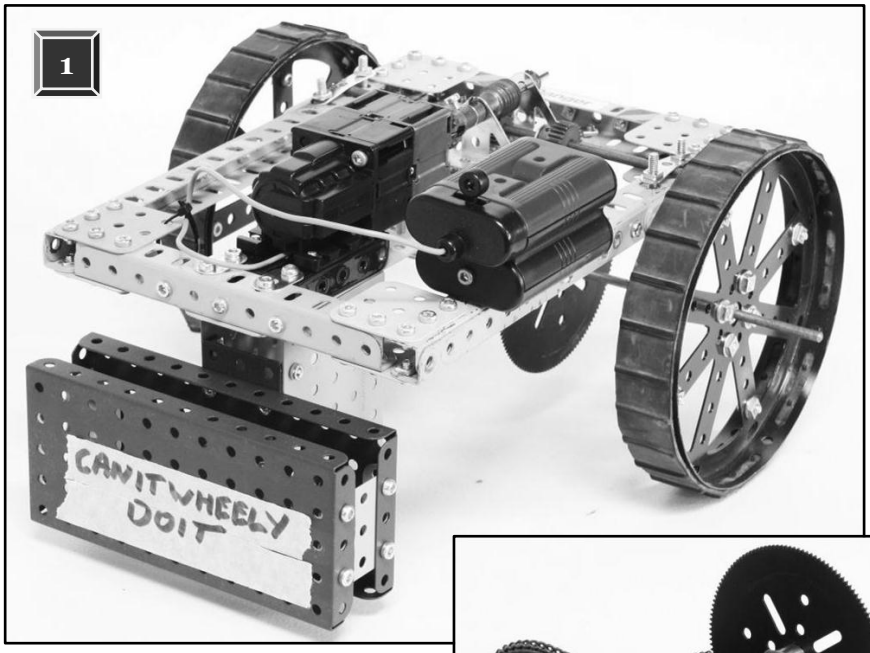
Lots of other good stuff is in the pipeline so if you're quick, there may be room for your contribution!

How They Did It in 2017

Our April Argy-Bargy contestants find themselves pushed into providing a few words about their crafty contraptions and their performance; some pictures by the builders covered the Ed's incompetence on the day

1: *Canit Wheely Doit*
Built by Paul Furness

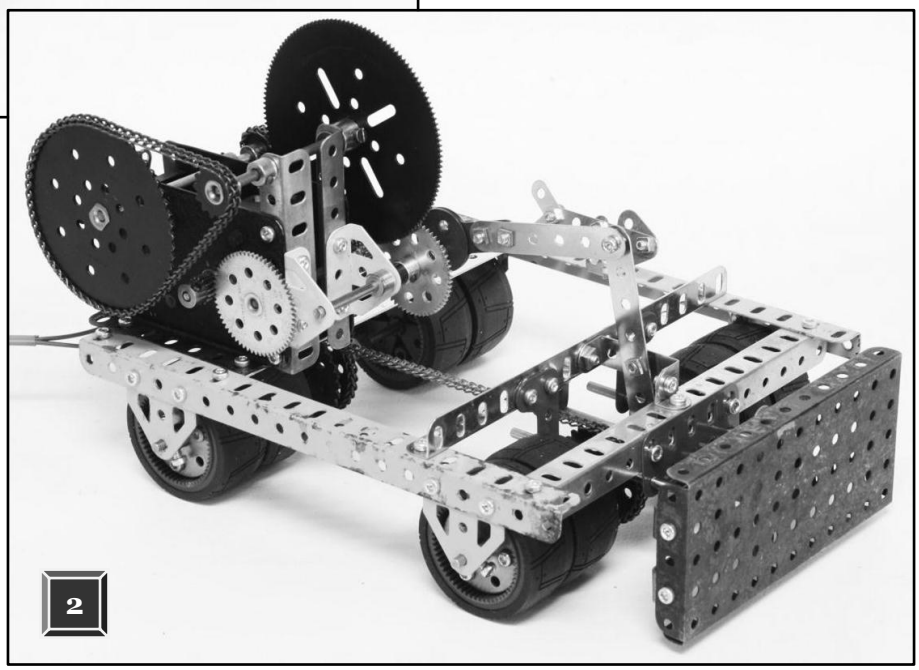
Canit had a rectangular chassis made from two each 9½" & 5½" Angle Girders braced at the corners by 1½" × 1½" Flat Plates and a 1½" × 9½" flat plate [Ed. Hmm, you remained quiet about the non-standard part…] running centrally front to back. On this was mounted an M.0 Motor with two 19:1 Gearboxes on a 2½" × 1½" Flanged Plate (51f), these driving a Worm then a 19t Pinion on a cross-axle with a 25t Pinion engaging a 133t Gear on the wheeled axle. Driven wheels were pairs of Hub Discs with rubber Caterpillar Tracks tightly fitted onto them; front wheels were 1" Pulleys with Tyres mounted on the bottom of two 3½" × 2½" Flanged Plates. The pushing end was a pair of back-to-back 5½" × 2½" Flanged Plates. Although the gearing provided a very low axle speed, the Caterpillar Tracks did not have enough grip and were easily shoved back while slowly turning forwards.



Paul Furness

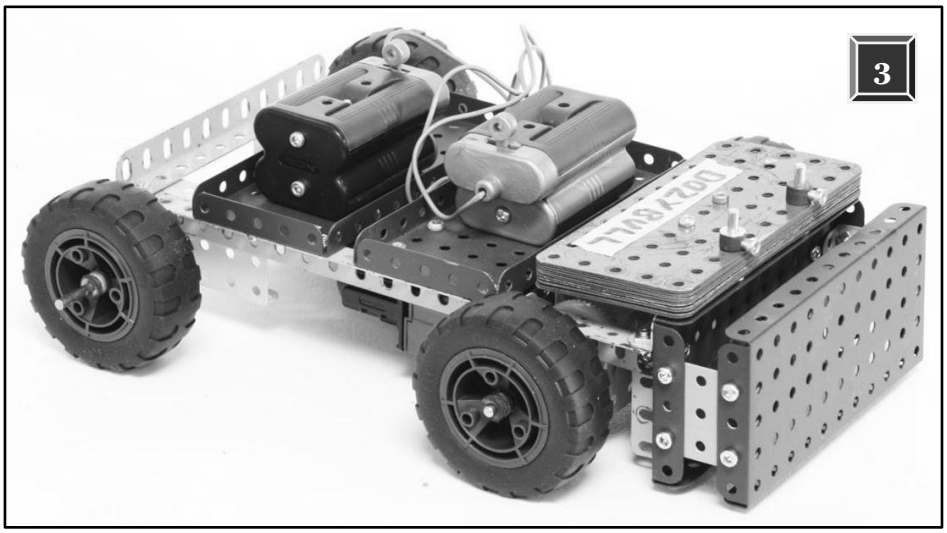
2: *Deryshire Ram*
Built by Bob Seaton

This year's annual competition touched a nerve and once the New Year had arrived, my thoughts turned to battle and to building a suitable vehicle with which to engage the enemy. First thoughts were of a static machine with lots of grip and a powered 'pusher' operated by a Screwed Rod. This was soon dismissed as the amount of pusher travel would be limited; if it succeeded in passing through to the next Round it would need rewinding and there was a possibility that the ram might overcome the grip on the battlefield and simply move the machine backwards - hmm… Second thoughts centred about a slow vehicle using the grippiest tyres I had at my disposal and an oscillating pusher for good measure. To add weight and extra power, I opted for two Meccano 12/15V Motors driving a common shaft and powered by an off-machine 12V battery. The oscillation rate would be about three times the drive wheel rpm with the idea that the push would not be constant and therefore have an advantage… Great! Building was somewhat frenzied and the result was a machine that could easily shift a static load of around 8.0 lb. The dimensions fell comfortably within the regulations so, I thought, I wonder if it would come within the total weight criteria. Hah, a full ¾ lb overweight! One of the Motors had to go and to compensate for the power losses, an extra reduction gear was inserted. The resulting machine had about the same pushing effort so the only thing to add was the customary arrow to avoid directional confusion



in the heat of the moment. Final testing was successful and tension mounted as the day drew near. Initial combat was interesting with no clear advantage of either machine - then as the minute was about to expire, the final drive Chain slipped ignominiously off its Sprocket. End of story and a Round 1 exit - again... Still, there's always next year!

Bob Seaton



3: *Dozy Bull*
Built by Paul Furness

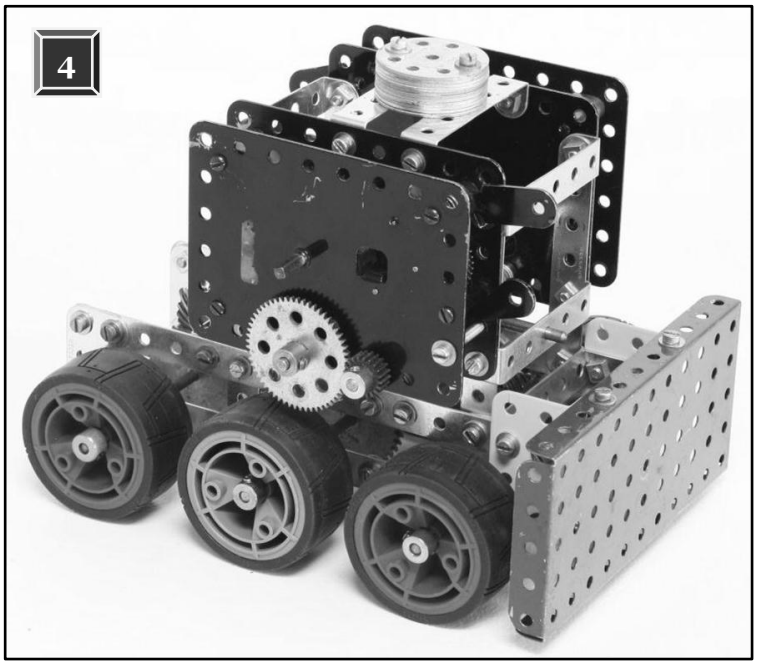
Dozy Bull had a similar rectangular chassis to *Canit Wheely Doit* then braced by two 5½" × 2½" Flanged Plates on top of which the battery packs were bolted with the M.0 Motors underneath. Each Motor had a pair of 19:1 Gearboxes, these being journalled into 1½" × 1½" Flanged Plates with a tri-flat 12t Pinion on the output shaft. These turned a 50t Contrate on a long Axle with a 57t Gear on each end pressed into a Geared Hub fitted with a large Tyre. The pushing end was the same as *Canit*. It worked quite well until at the crucial moment when at least one of the wheels started to spin on its axle or, more accurately, the axle was spinning in the 57t Gear boss!

Paul Furness

4: *Gruntfuttock*
Built by Rob Mitchell

Our annual contests need a thorough test to reveal any glaring loopholes and that was *Gruntfuttock's* main purpose plus the strange object helped to promote the fun. Erroneously thinking the name was a term used in oak-based shipbuilding, it was later found to be an unsavoury character in a 1960s radio comedy programme. *Grunt's* tandem No. 1 Clockwork Motors each had a 3:1 gear pair then 15t Pinions to 50t Contrates, the latter on a common shaft, followed by a further 3:1 to a lower level then a set of 2½:1 Helicals to each of the three driven axles. Six table-clinging Tyres keyed to their Rods with plastic 57t Gears in the Hubs would surely make it invincible, especially when weighted to the 1.81 kg limit by a stack of Wheel Discs although in the event, *Grunt* was one of the first to be spat out of the contest. There was a plan to fit a single lever to release both Motor brakes simultaneously but that fell by the wayside because of the maximum permissible weight.

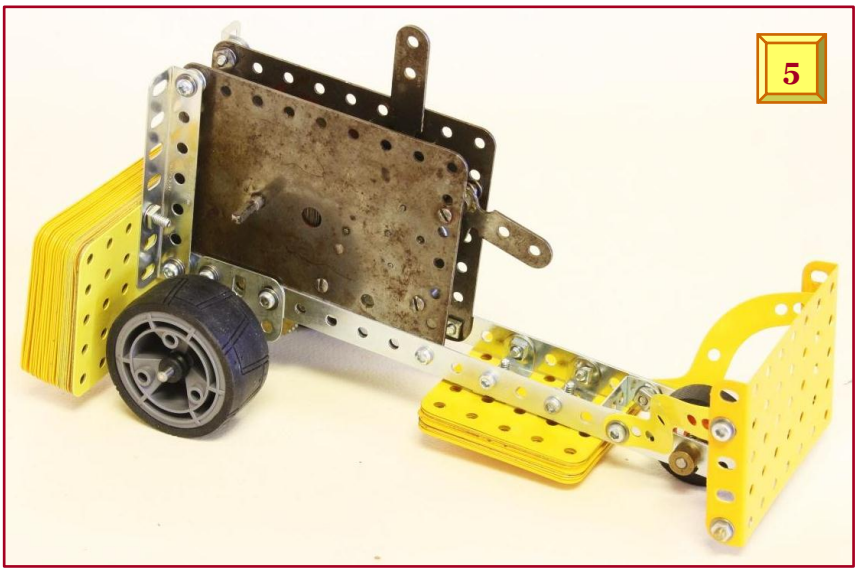
Rob Mitchell



5: *Pushing My Luck*
Built by Russ Carr

Clockwork seemed a good choice for this competition with its high torque and time-limited run. Having bought a decrepit No. 2 from LMS, entering the competition did give me the incentive to actually do something with it. Alas, a first wind revealed the Motor would not run; indeed, by spinning the output shaft, I could only just tell which way it was supposed to drive. Well, a tie-wrapped mainspring and a disassembly later, all the parts were de-gunged and with a handful of expletives, reassembled. A quick spray of oil and the Motor ran satisfactorily. The drive was taken by 50t Gear directly from the mainspring gear as a 25t Pinion (popular with No. 1s) doesn't clear it. Minimal structure and maximal ballasting completed the machine. Despite running the Motor a couple of times to remove excess oil, I still managed to leave a slick on the competition course which, even after wiping off, did appear to have a bearing on subsequent heats. [Ed. We always knew you were a slippery character.]

Russ Carr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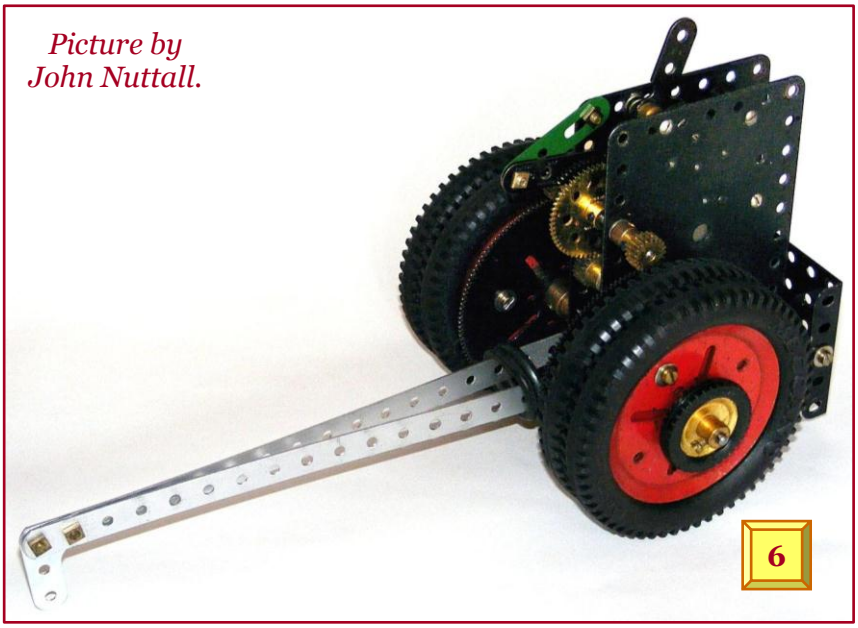
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Picture by John Nuttall.

6: *Revohs*
Built by John Nuttall

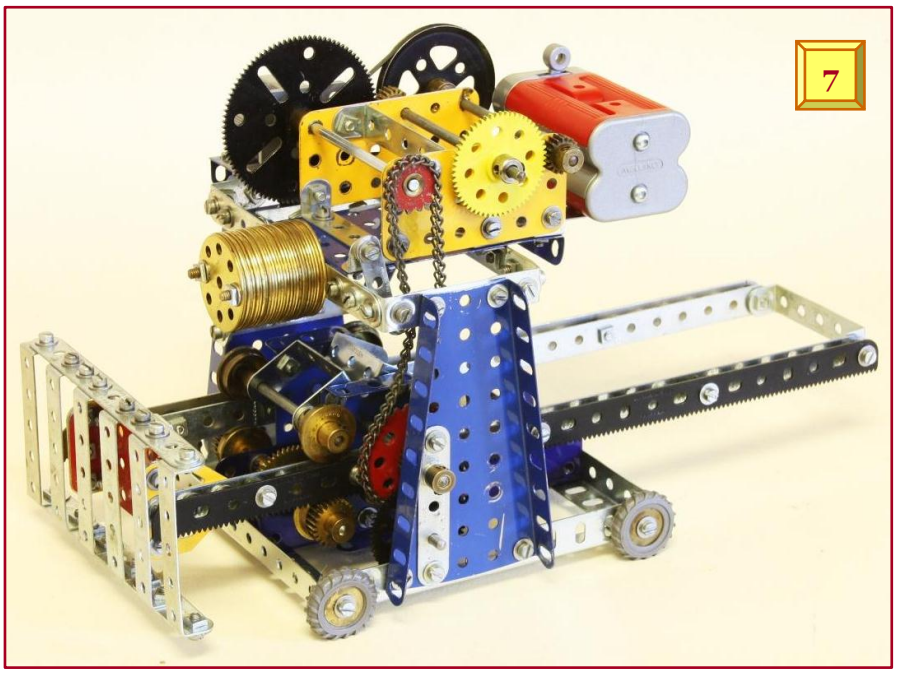
Revohs is 'Shover' in reverse. How well the tyres grip a smooth table top was clearly important and the best grip from the Tyres available was from Calais production 142b, marked 'Meccano Fab en France'. I used a No. 2 Clockwork Motor because it had a stronger spring than the No. 1. To keep things simple I decided on a single driven axle mounted directly in the sideplates. The Motor weight was in front to keep it nose-down. Maintaining the pushing face at a legal height off the table, a long Threaded Pin was mounted centrally behind it to project ⅜" below the bottom edge.

To avoid the inefficiency of gearing up and then down again, the standard output shaft was not used. A 19t Pinion was arranged to mesh directly with the main wheel on the winding shaft. This was followed by a 3:1 and then a 7:1 reduction with the 133t Gears bolted directly to the driving wheels to avoid problems with slipping Grub Screws or bosses. The resulting unit weighed 1.0 kg only. The extra weight needed to get it nearer the limit was added to the axle, between the pairs of 3" Pulleys and Tyres, a stack of sixteen Semi-Circular Plates being used at each side. This did not increase the load on the axle and thus did not increase the friction in the bearings. With nothing behind the driving axle there seemed a distinct possibility of it turning over backwards, even though it was front heavy. To avoid this I fitted the tailskid shown.

John Nuttall

7: *Shift*
Built by Rob Mitchell

With a viable clockwork entry completed, an electric variant was a natural progression. As the rules allowed for a non-moving entry (as realised by others), a 'pusher' was arranged on the end of a longish arm running in ¾" Flanged Wheel guide rollers and equipped with four 6½" Rack Strips. This was slowly moved forward by an M.0 Motor through a decent reduction ratio. The downside of being stationary is the limited stroke; when at maximum extension, the thing had 'shot its bolt' so gave the opponent a free hand for the remaining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time! Wheel Discs again fine-tuned the weighting and, although the same weight as *Grunt*, it wasn't nearly as effective so being barged out during Round 1 was hardly unexpected.

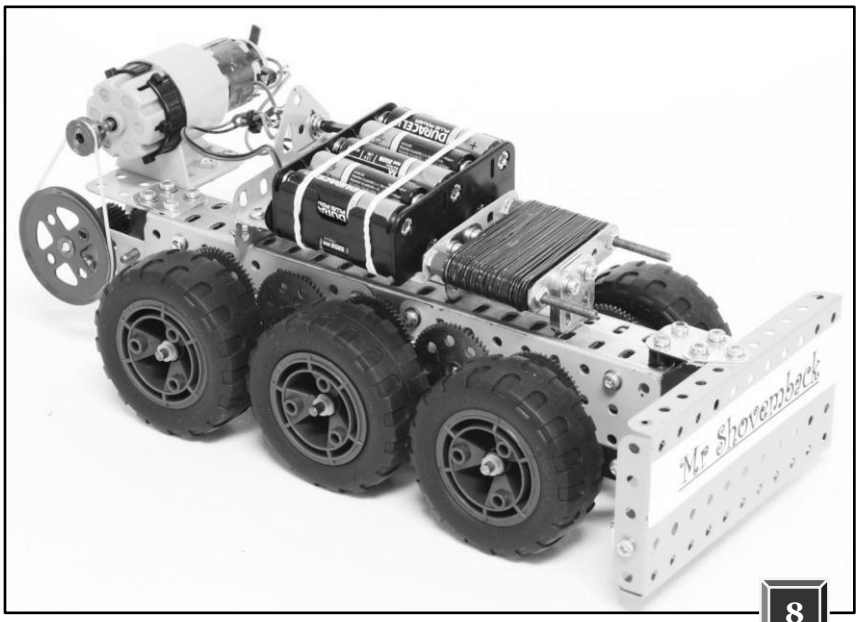
Rob Mitchell

8 & 9: *Mr & Mrs Shovemback* Built by Alan Lovett

Mr Shovemback was built first and was six-wheel driven from a Powerdrive Motor, powered from ten on-board AA batteries. The initial drive was a ½" to 2" Pulley then a gear train of a 25t Pinion engaging a 50t Gear (twice) to a Rod with a 19t Pinion mounted on each end. Each of these Pinions drove a train of five 57t Gears where the first, third & fifth each carried a 19t Pinion engaging the teeth inside each wheel (right). The pushing surface was a firmly-attached 5½" × 2½" Flanged Plate. The weight limit was obtained by adding 2½" Strips above the wheels.

Mrs Shovemback also used a Powerdrive, its ½" Pulley driving a 1½" then a 19t Pinion engaging a 57t Gear on a shaft which carried three Worms. These engaged 19t Pinions, their shafts having a further 19t Pinion at each end engaging the Hub's internal teeth. The pusher was again a 5½" × 2½" Flanged Plate and various Flat Plates were added to reach the maximun 4.0 lb weight limit. Power was supplied from a remote battery.

Alan Lovett



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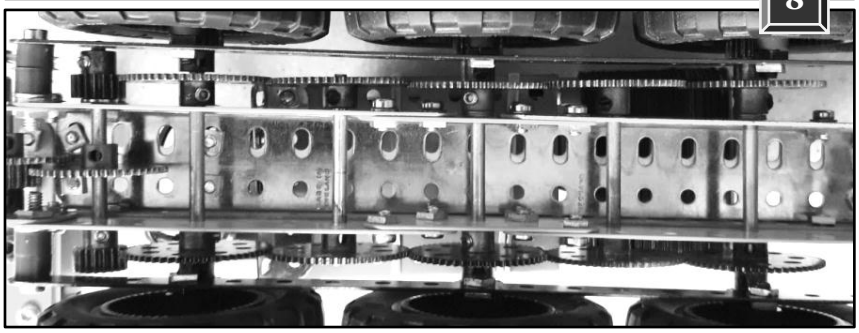
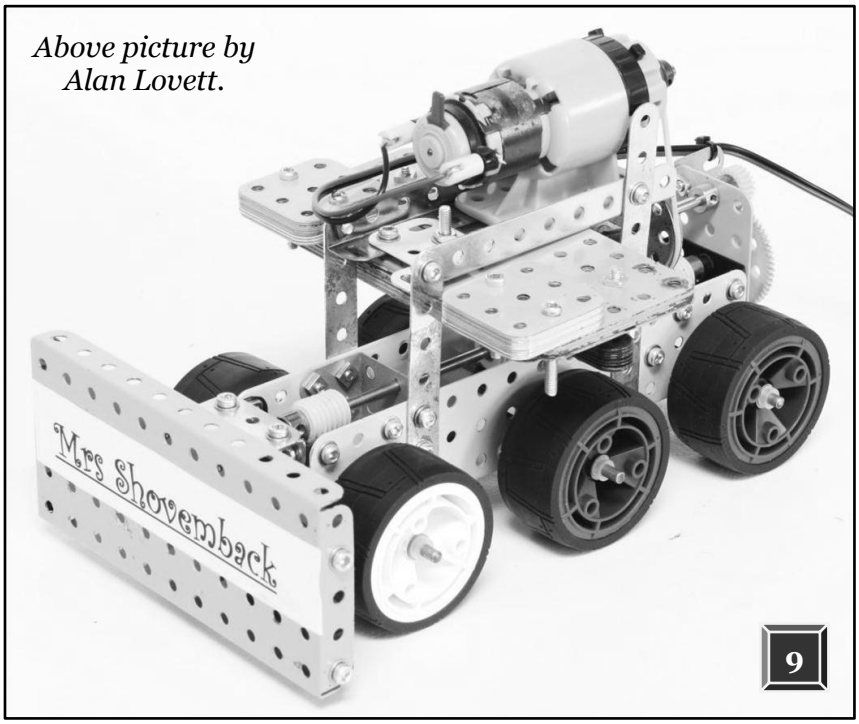


Above picture by Alan Lovett.



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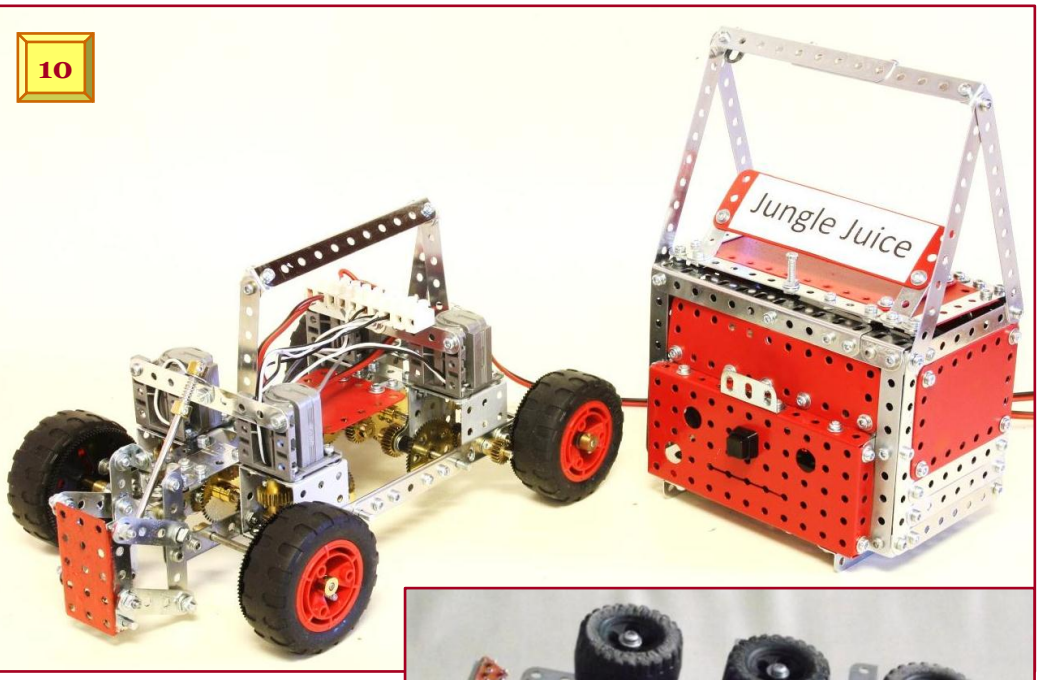
10: *Tarzan of the Japes* Built by John Wilson

Most entries would use plenty of power, be up to maximum weight and have the grippiest of tyres so something else was needed to give *Tarzan* the edge. The front face seemed to give an opportunity. Mounting it on a parallelogram arm system held in the down position by a small spring ensured that it would always be vertical and, when battle commenced, the spring would be compressed and the front plate rise slightly. Hopefully, this would start to lift the front of the opponent from the ground, so increasing *Tarzan's* traction and reducing the opponent's. It worked well. However, the second round was most interesting. The opponent, *Discombobulator*, was a three-axle job which in the first Round had won convincingly, gripping the table exceptionally well. At first contact, *Tarzan* briefly lifted *Discom's* front end, so lifting four out of six wheels off the table and knocking it back a fraction so that the two machines bounced apart. The spring extended, *Discom* dropped to the ground and held firm so stopping both machines dead in their tracks. Contact force built up and the cycle started again.

So it continued with a rhythmic shoving back then stopping dead, so that *Tarzan* was able to make progress but only a fraction of an inch at a time.

John Wilson

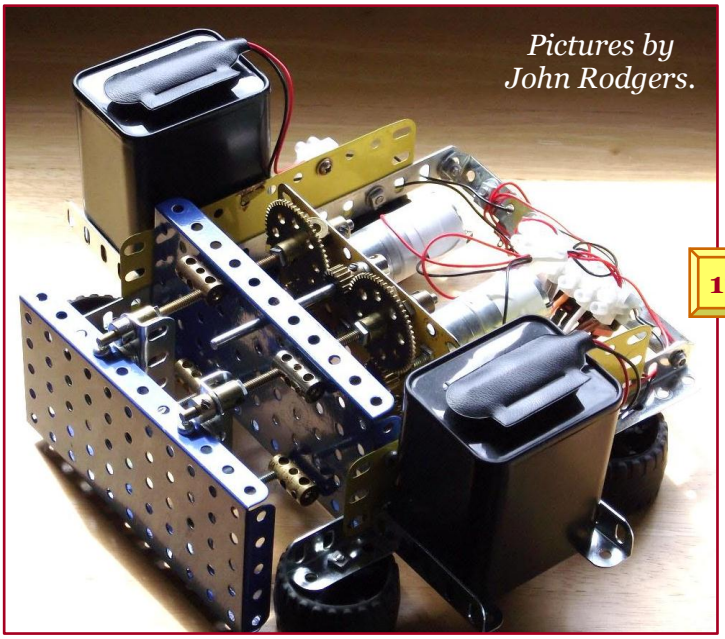
10



11: *Taurus* Built by John Rodgers

Having tried several different types of rubber wheel, I came to the conclusion that none of them provided sufficient friction to drive a vehicle that was pushing against another, even when they were roughened with sandpaper. I did, however, notice that the '331' Wheels, laid on their side, had much more area than any other (therefore more resistance), than on their periphery. Thus, if I used multiple Wheels on their sides there would be a good chance that my entry would resist most of the others. This left the problem of providing forward motion and the obvious way was to build a powerful pusher. A pair of geared motors each drove a Screwed Rod and were synchronised by Gears, the screw-jacks pushing forward the 52 with a stroke of approximately ⅞" in one minute, the duration of the competition. A pair of 9V batteries with the appropriate switching gave start, forward, reverse and stop. *Taurus* worked well but against the eventual overall winner, it served only to accelerate the reverse direction!

John Rodgers



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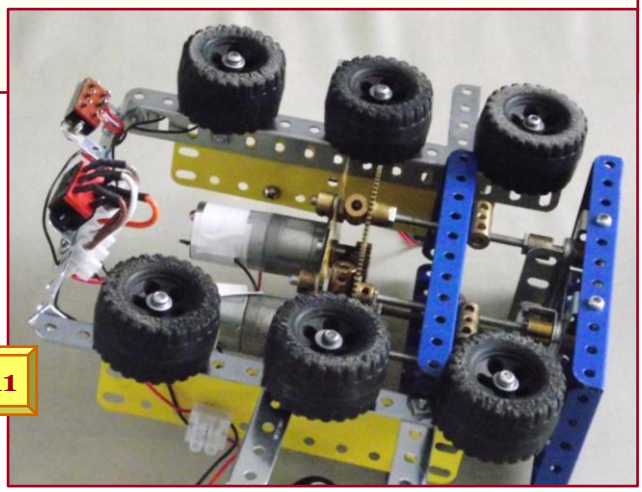

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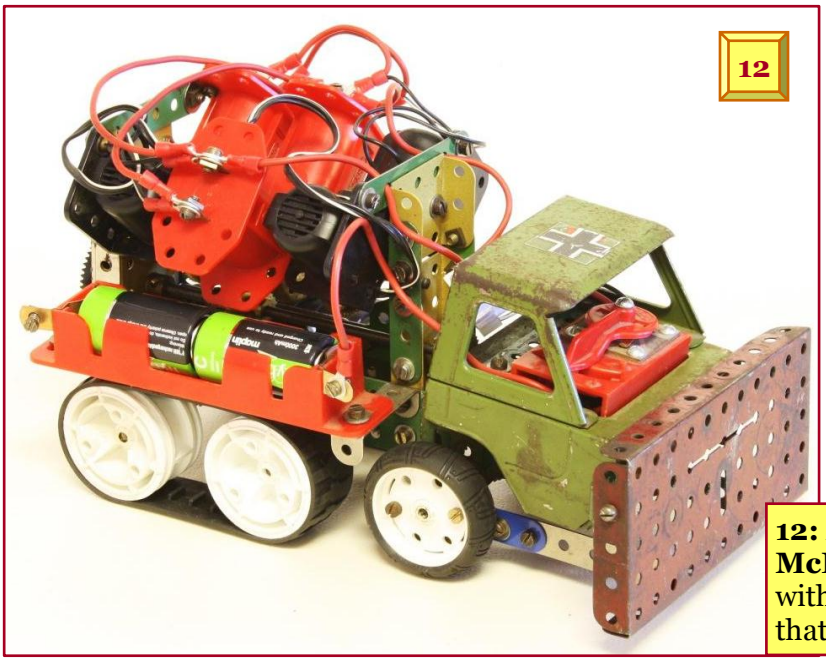


12: *Discombobulator* built by Iain McKenzie. A fearsome-looking machine with six M.0s (surely better named *Sir*?) that almost ended *Tarzan's* winning streak.

Fifty Years of the MMG

George Illingworth writes with pictures by Richard Kenyon

The Midlands Meccano Guild was formed in October 1967 and so is 50 years old this year. This milestone was celebrated at an extra meeting in July. Among those present were three founder members Pat Briggs, Clive Hine and Jim Gamble. Sadly another founder member, David Goodman, was not well enough to be there.

↑ The 50th anniversary meeting attendees assemble in a commendably ordered manner outside Baginton Village Hall, 29th July 2017.

↓ Ranged behind the obligatory cake and an array of fifty-part models are the MMG's current Committee and founder members. Left to right are **John Nuttall** (Treasurer), **Geoff Wright** (President), founders **Jim Gamble**, **Pat Briggs** and **Clive Hine**, **George Illingworth** (Chairman) and **Roger Marriott** (Secretary).

↘ There were abundant models of course and one of several with fifty parts was surely a metaphor for successfully running the MMG for half a century! **Sid Beckett** was this chap's builder.

Among the many models there were three worthy of special mention because they were built by founder members now deceased but fortunately are still cherished by their new owners. Tim Gant brought along the blocksetter crane originally by Bert Love. Tim Martin produced both a Traction Engine by Ernie Chandler and a clock by Jack Partridge. It was very emotive to have those reminders present.

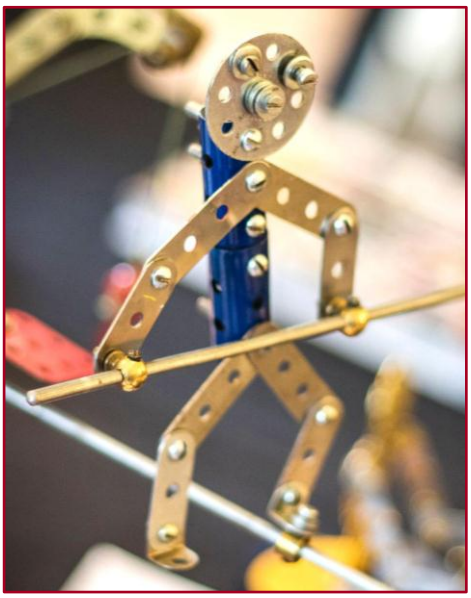
There was a splendid buffet lunch organised by the ladies and a large cake decorated in a style based on the decoration of the cake at the first birthday meeting. It was a very enjoyable occasion for old and new members alike.

George Illingworth

Thanks George! There are pictures galore at:

www.nzmeccano.com/image-115856

...and a complete review of the occasion will appear in the *MMG Bulletin* for September 2017. See page 63 for the MMG's main contacts. *RM*



Four-speed & Reverse Gearbox

Build your own part-by-part with Alan Lovett

This gearbox, **Fig. 1**, is based on the one used in my Land Rover which I built for the Telford & Ironbridge MS's Meccanuity 2016.

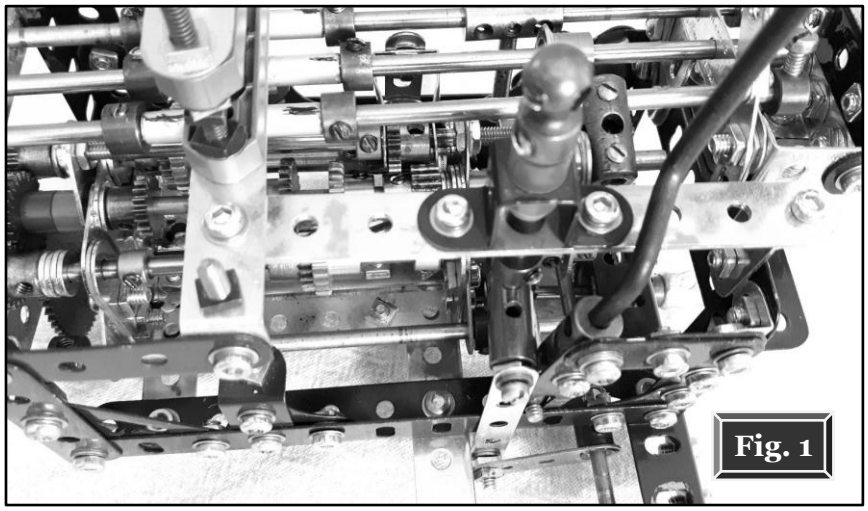


Fig. 1

Frame

Fig. 2 shows the complete gearbox. The frame is constructed from three 3" × 1½" Double Angle Strips and four 1½" Flat Girders. To the bottom hole of the Double Angle Strip upright, bolt two Flat Girders on the outside, their slotted holes pulled fully out. Repeat on the other upright. Attach the other Double Angle Strips to the middle Flat Girders' round holes with a Washer or 1½" Strip on the side with the topmost Flat Girder. This forms the basic frame. At the input end (you choose the end required), bolt through the middle Flat Girder attached to the middle Double Angle Strip. On the output end attach two 1" strips to form a bearing for the output shaft. On the input side place a Bolt through the middle hole of the Flat Girder and the centre Double Angle Strip. Ensure that Axles in the top three and bottom outside holes are free and rotate easily.

Gear shafts

Insert a 1" Axle through the Flat Girder's top middle hole and the central Double Angle Strip at the output end, attach a 25t Pinion halfway to leave support and bearing for the end of the input shaft; space the parts as the centre right of **Fig. 2**. On the outside place a 1" strip, a small plastic Spacer and a small Fork Piece.

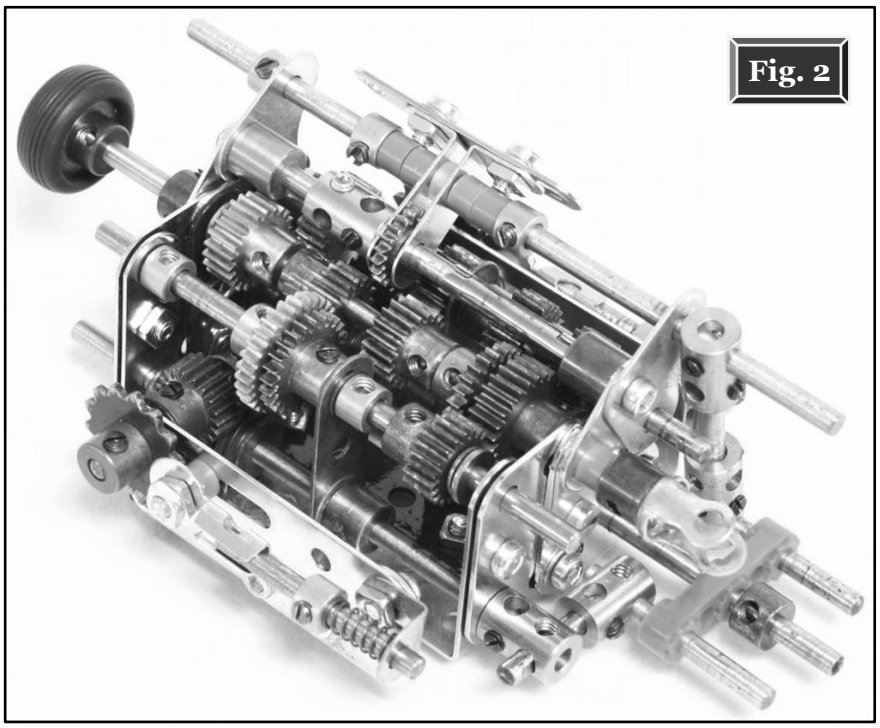


Fig. 2

Place a 4" Axle through the Flat Girder's top middle hole and the central Double Angle Strip then add two Washers, a 22t pinion (face first), 15t Pinion (boss first), 19t Pinion (face first), narrow 25t Pinion (boss first) and a Washer. The Axle end is supported in the 25t Pinion on the output axle; space the parts as the centre left of **Fig. 2**. On the outside, place a 1" strip and a Collar. For building purposes, I attached a ½" Pulley with Tyre which enabled me to turn the input with ease.
With the input shaft on your left and the output shaft on your right, insert a 4" Axle through the left-hand side front Double Angle Strip. Place on the Axle an Aero Collar, a narrow 30t pinion (boss first), a narrow 25t Pinion (face first), an M4 washer, a Crank by its slot with the Collar facing to the right, an M4 washer, an Aero Collar then a 19t Pinion with short Grubs (boss first) and finally, two Washers space the parts as per **Fig. 3**.

A reverse gear carrier is made up of two 1" × ½" Narrow Angle Brackets (812b) and a 2" Narrow Slotted Strip. The first Bracket is bolted by its short leg to the second round hole in the Slotted Strip and the other Bracket is bolted through its slotted hole by the short leg. The long legs should face each other with the Bolts on the outside of each leg, **Fig. 3**.

With the output shaft now on your left, insert from the input side a 4"

Axle through the Double Angle Strip then a narrow 22t pinion (boss first), a 19t Pinion (boss first), an M4 washer, a Crank by its slotted hole with the Collar facing to the left, an M4 washer, a 19t Pinion (boss first), a 19t Pinion with short Grub (boss first) and two Washers space the parts as per **Fig. 3**. On each end of this layshaft place a 1" Corner Bracket so that the curved edge is facing you. Connect the Corner Bracket to the 1" strip with a Screwed Rod Adaptor. The Axle ends must point inwards to each other. On the input side Screwed Rod Adaptor, screw a Short Coupling, a 1" Axle, the bottom hole of the reverse gear holder, a narrow unbossed 19t Pinion (Dave Taylor's part 25ux), the bottom hole of the other Narrow Angle Bracket, a Rod Connector and join to the other Adaptor, **Fig. 3**.

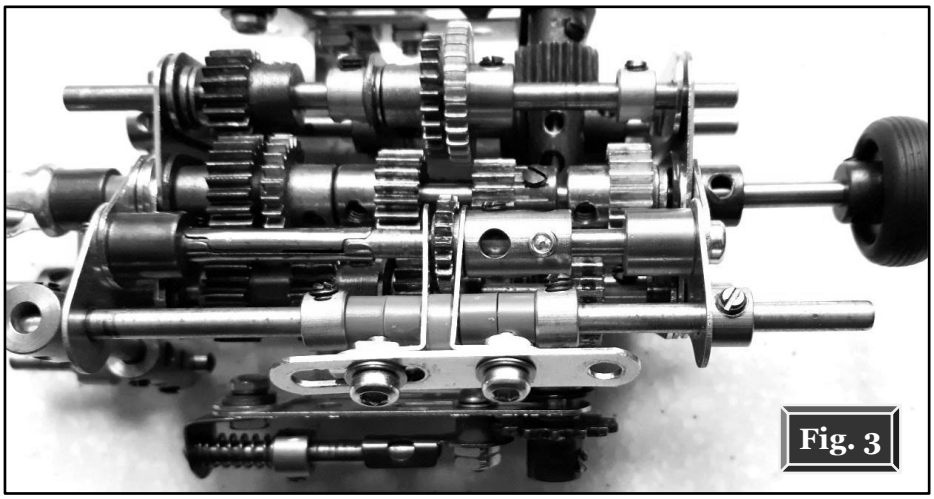


Fig. 3

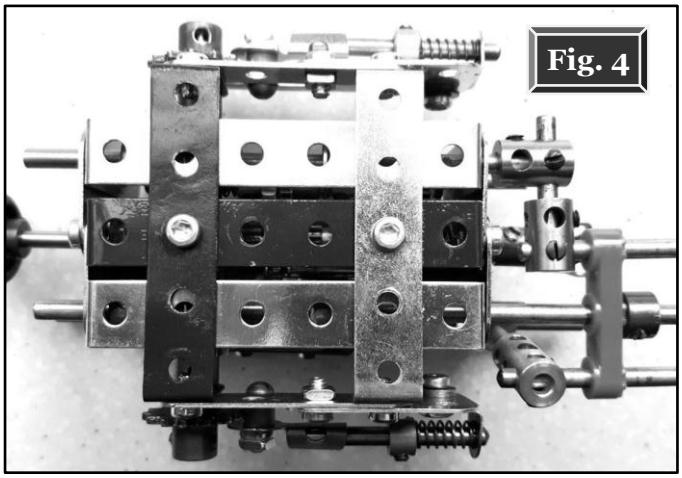


Fig. 4

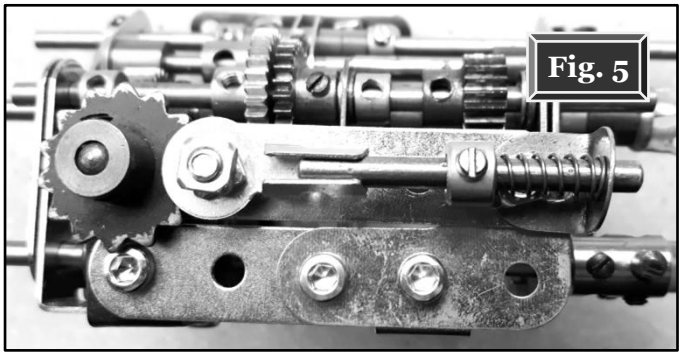


Fig. 5

Insert a 4½" Axle through the input side of the last free hole of the Corner Bracket then an Aero Collar, two small Plastic Spacers, a Narrow Angle Bracket, a neoprene Collar, a second Narrow Angle Bracket, two small Plastic Spacers, an Aero Collar then through the output side's Corner Bracket.

The resultant ratios are:

Gear	Pinion tooth count (input to output)				Ratio
1st	15	30	19	25	**2.63**
2nd	19	25	19	25	**1.73**
3rd	22	22	19	25	**1.32**
4th	25	19	19	25	**1.00**
Reverse	19 - 19 - 19		19	25	**1.32**

Turn the gearbox over, **Fig. 4** and with the input shaft on the left, fix a 2½" × 1" Double Angle Strip by its centre hole to the second hole in the central 3" × 1½" Double Angle Strip (items shown as dark parts in **Fig. 4**). On the fifth hole of the 3" Double Angle Strip, attach a 2½" × ½" Double Angle Strip by its central hole. To the 2½" × 1" Double Angle Strip's lowest hole, bolt a 2" Strip and a 1" × 1½" Corner Bracket by its middle hole and the 2" Strip's fourth hole to the Double Angle Strip. Bolt the Corner Bracket's first hole to the 2" Strip's third hole, **Fig. 5**. Repeat on the other side.

Selector rods

With the input shaft on the left, place in the bottom hole of the Flat Girder and 3" × 1½" Double Angle Strip a 4" Axle then a Worm (boss first), through the Crank and exit through the Double Angle Strip's far end. Turn the gearbox round (input shaft to the right), insert in the bottom hole of the Flat Girder and 3" Double Angle Strip a 5½" Axle with a Worm (boss first), through the Crank and exit through the Double Angle Strip's other end.

Fix a 1½" Axle part way into a Coupling then a 19t Pinion (as shown by the arrow in **Fig. 6**) then into the top hole of the 2½" × 1" Double Angle Strip. Slide a 2" Axle through the Double Angle Strip's other end, a 19t Pinion and into the Coupling. Adjust the compound shaft so that the Pinions butt up to the Double Angle Strip and an equal length protrudes from each side. The pair of gear-change detents are each a 2½" slotted strip (55b) with a ⅜" Bolt locknutted in the slot, a small plastic Spacer and a Rod & Strip Connector.

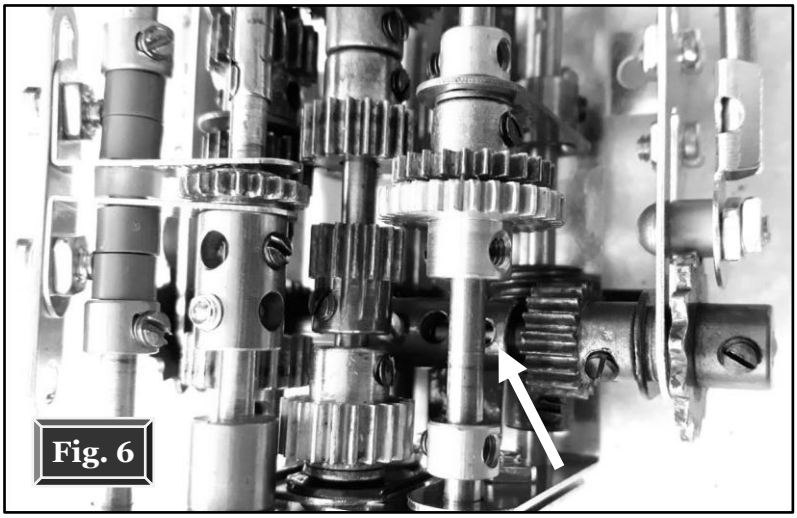


Fig. 6

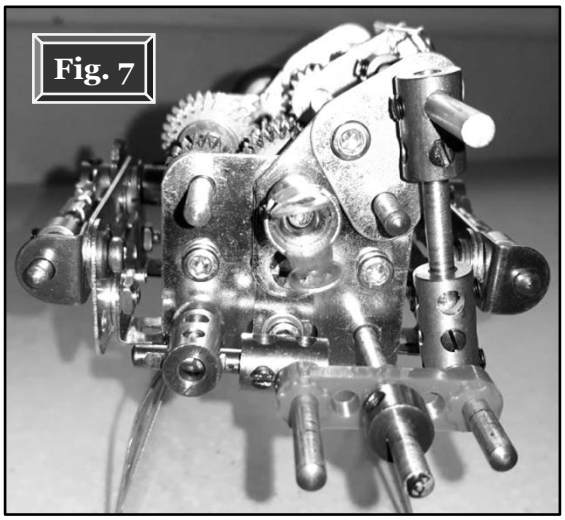


Fig. 7

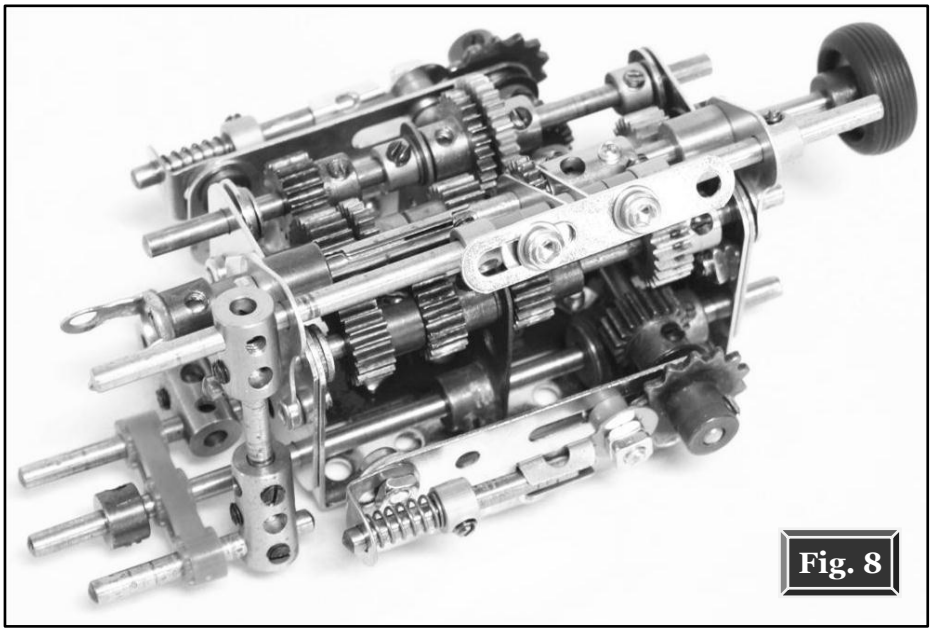


Fig. 8

Turn the gearbox so that the input shaft is on the left. A Washer is placed on the compound selector shaft then the gear-change slide. The slide's first hole is bolted to the Corner Bracket by a Bolt with a Washer placed from the inside through the Corner Bracket then an Angle Bracket by its slot, pulled to fully out. Place an M4 washer then a 14t Sprocket on the compound shaft. Insert a 1½" Axle through the Angle Bracket, a Compression Spring and Aero Collar then into the Rod and Strip Connector as per **Fig. 5**. With each layshaft in the neutral position adjust the 14t Sprocket so that one tooth either way engages the relevant gear. Repeat on the other side.

The selector rods are aligned with a plastic Narrow Strip (260c), **Figs. 7 & 8**. Fix a Short Coupling on the first-second gear selector through the axial bore; on the cross bore set a 1" Axle with another Short Coupling attached by its axial bore with the cross bore holding a 1½" Axle. On the reverse gear selector, attach another Short Coupling through the cross bore, fit a 1½" Axle through the axial bore with a Coupling attached by its axial bore; its cross bore holds another 1½" Axle. These two selectors are inserted in the plastic Strip's outer holes with the centre occupied by the third-fourth selector rod.

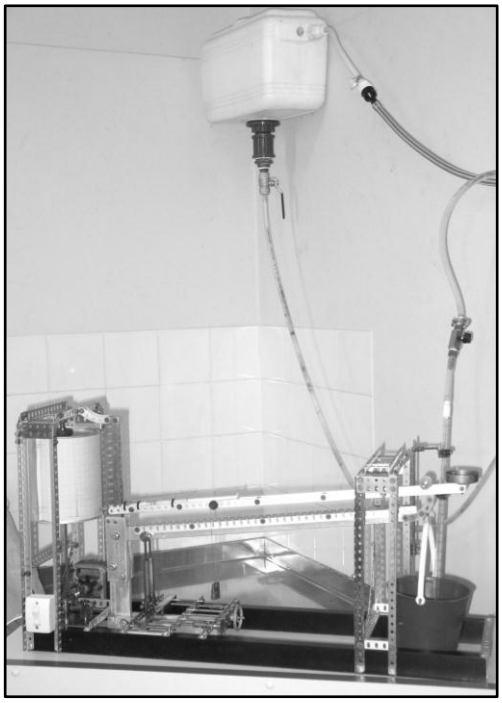
Sting in the tail?

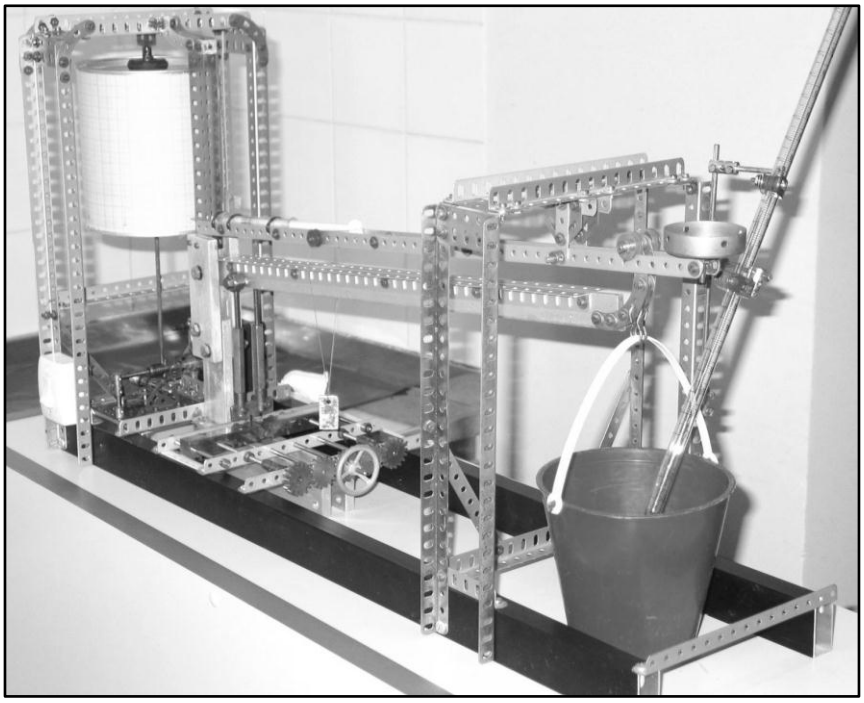
Have fun connecting your own gear lever!

Alan Lovett

Figs. 1 and 3 to 7 by Alan; 2 & 8 by Rob.

Rat Femur Resistance Tester





A device curiously absent in Meccanoland built by José Luis (Pepe) Ferretti

In my capacity as an official researcher in my country in the discipline of Bone Structure & Biomechanics, I have performed many experimental studies. One of these involved my building of a Meccano 'Rat BRT' (Rat-Bone Resistance Tester!)

A dissected rat femur can be seen placed between two supports then loaded at the centre by a constantly-increasing load (the constancy of the increase assured by a sophisticated, 'cosmological', float-controlled water system to carry a gravity-assured, constant flow of liquid into the plastic receptacle!) while a constant-pressure marker (note the 25g Weight counterweight placed to neutralize differences in paper-to-pencil pressure derived from the circular excursion of the pen arm) traced the load-versus-deflection curve. Some mechanical properties of bone such as stiffness and strength can be determined graphically from the obtained curve. This is just a single sample of two outcomes, namely:

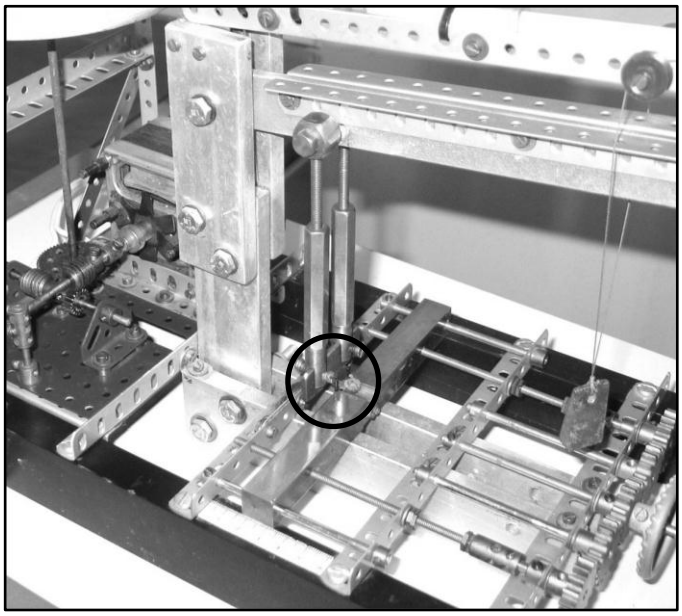
1. What Meccano can be really useful for;
2. Resourcefulness in a situation where original research can be most difficult.

For further interest, you can go to:

www.PubMed.com

This is the best international register of virtually every scientific paper published in acknowledged journals. You can then search for 'Ferretti JL' and see a number of papers I have been able to publish in the international literature despite having had to work with many types of very heavy restriction.

Pepe Ferretti



↖ Plumbed-in 'R-BRT' at work in the lab.

↑ As it fills at a constant rate, the bucket applies a steadily-increasing load to the femur via a lever which also carries the recording pencil.

← A rodent's bone (ringed) is located in a notch and also supported by an Angle Girder. Their separation, hence bending moment, can be varied by twin hand-wound screws. The applied load is through the two vertical hexagonal members.

Pictures by Pepe.

Gordon's Steam Carriage of 1824

Designed, built, described and photographed by Ken Ashton

The prototype

Patented in 1824 by David Gordon, this remarkable engine was designed to run on the very rough roads of the time. On a three-wheeled chassis, it was walked along by six sprung legs with feet or 'propellers' operated by the cranks in two crankshafts linked by two connecting rods and driven by a twin-cylinder steam engine (Diagram A). The setting of the crank webs was arranged so that the propellers when pressed against the ground were pushed backwards in sequence and hence moved the carriage forwards (Diagram B). The propellers could be lifted to allow free-wheeling downhill and the wheel at the front allowed steering. Needless to say, despite four such carriages being tried, it was not a successful design and was abandoned by Gordon four years later when he conceded that applying power to the wheels was, literally, the way forward.

The model

The model has been designed to replicate the walking motions of the prototype although, in order to greatly simplify the crankshaft construction, eccentrics rather than cranks have been used on both crankshafts. My carriage width only allowed five propellers rather than six. The use of twin cylinders, connecting rod driven crankshafts, sprung legs and a provision to lift the propellers off the ground has, however, been followed. General views are shown in Figs 1 & 2.

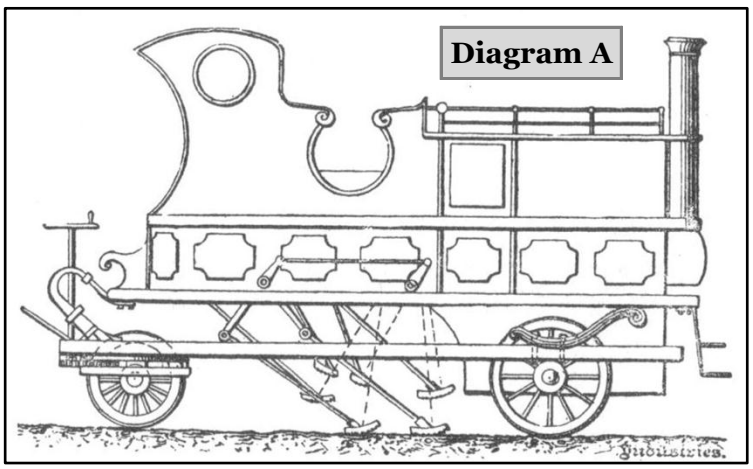
Chassis

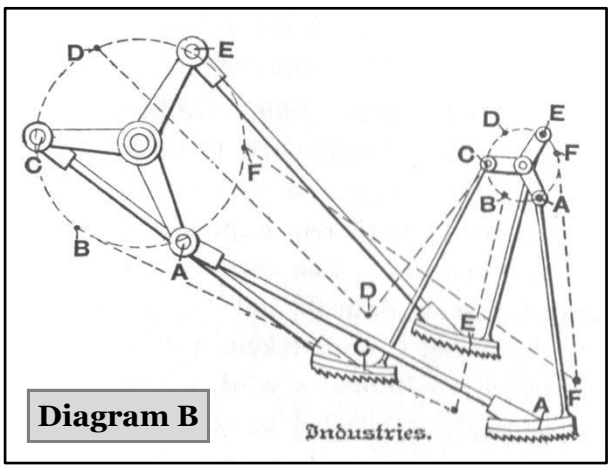
The lower chassis accommodates the wheels and consists of two 12½" Angle Girders joined by Corner Gussets and a 7½" Angle Girder at the front and two 8½" angle girders (Figs. 3 & 4). The rear wheels, spoked and rubber-tyred, have short axles journalled in Channel Bearings spaced from the Angle Girders by long collars. The front wheels are mounted on an axle in a 1½" × ½" Double Angle Strip bolted to a 95t Gear on a short Rod journalled in a Double Bent Strip on a 4½" × 1½" flat plate (Fig. 2). The steering shaft is journalled in two Double Bent Strips and has a 19t Pinion which meshes an idler 19t Pinion on a short shaft again journalled in a Double Bent Strip. The wheel comprises two 3½" Narrow Strips formed around six short Rods in two Triple Rod Connectors, one bossed. The degree of steering is limited by three long Bolts and a simple band brake on one rear axle has been provided and operated by a lever next to the steering wheel (Fig. 3).

The upper chassis consists of two 12½" Angle Girders joined by an 8½" angle girder at the front and is located at the rear on leaf springs bolted to the lower chassis spaced by ¾" Washers to clear the bolt heads. Spring shackles are 1" Double Brackets slotted onto long Bolts. The upper chassis is supported at the front on each side by a sloping Rod in a Coupling mounted on a Pivot Bolt fixed to a 1" Corner Bracket and a four-hole coupling on a long Rod passing through the upper chassis sides. This Rod also provides the pivot for the lifting propeller mechanism.

Propeller frame and motor drive

The crankshafts are carried on a framework consisting of two outer 11" compound Strips and a 7½" Strip which are located by Collars on the long pivot Rod (Fig. 3). The long Strips are connected at the rear by a long Rod and located between Collars and the rocking cylinders provided by two 2½" sleeve pieces held in place by Collars. The 7½" Strip is located on the rear crankshaft which carries five Single Eccentrics, a 57t Gear and a Bush Wheel at each end. The Gear meshes with a 19t Pinion on a short rod journalled in the back hole of the 7½" Strip. The whole framework is





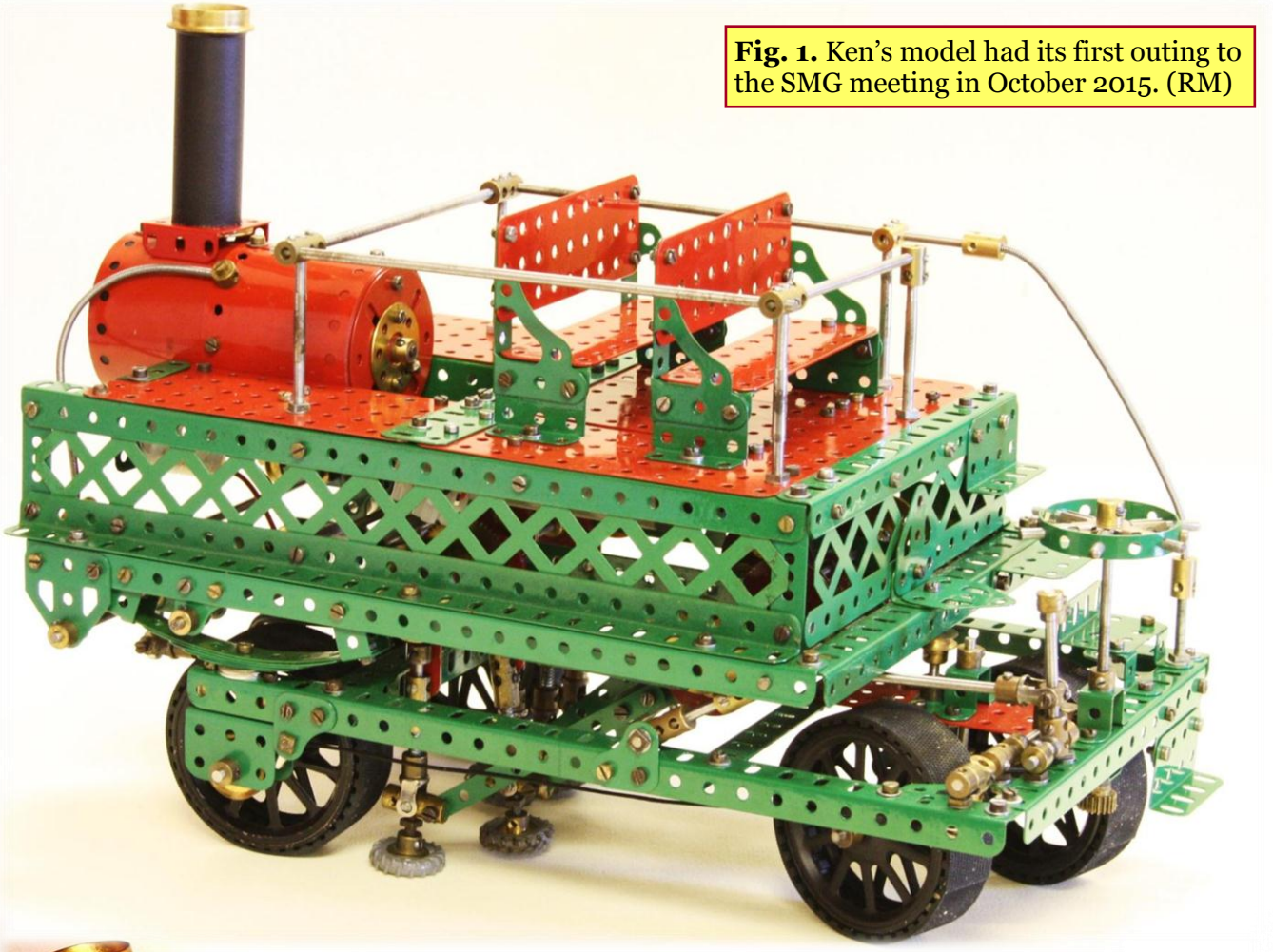


Fig. 1. Ken's model had its first outing to the SMG meeting in October 2015. (RM)

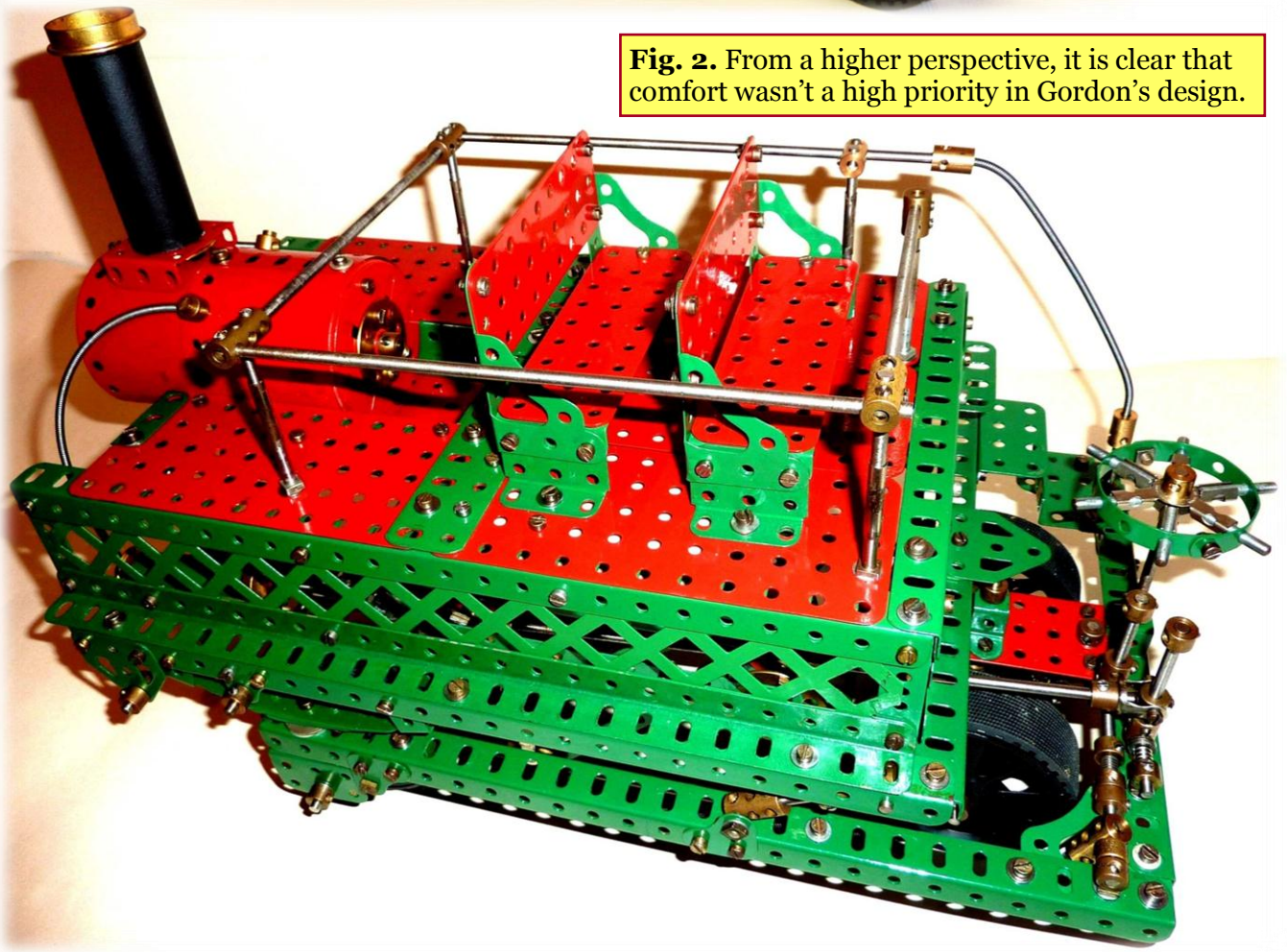


Fig. 2. From a higher perspective, it is clear that comfort wasn't a high priority in Gordon's design.

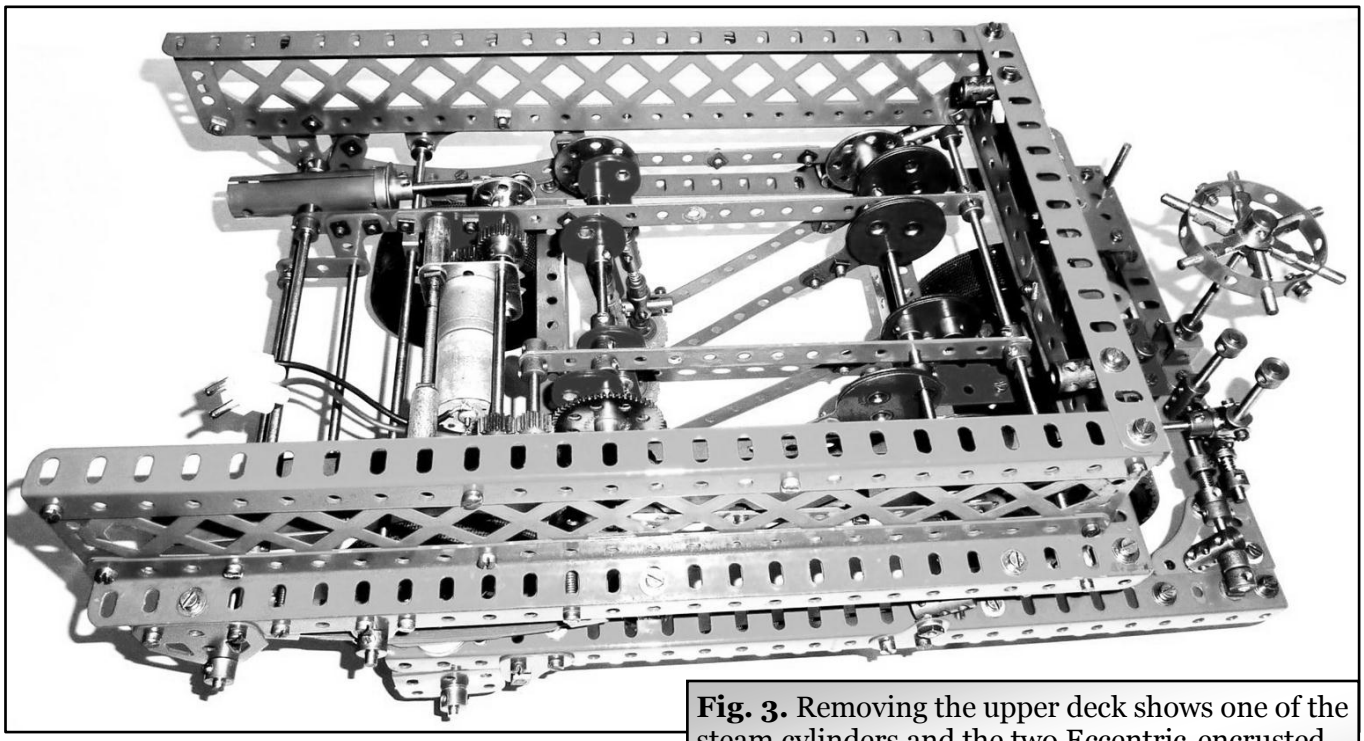


Fig. 3. Removing the upper deck shows one of the steam cylinders and the two Eccentric-encrusted shafts; that in the centre with Singles is for raise-lower, the one to the right (front) with Triples provides forward motion to the chariot.

prevented from dropping by a long Rod attached to 1" Corner Brackets bolted to the chassis above the spring. The long Rod carries two ½" square collars bearing against the compound Strips. The front crankshaft comprises five Triple Eccentrics on their largest throw and a Bush Wheel at each end. The Bush Wheels on each crankshaft carry a lock-nutted compound 4" Narrow Strip and these connecting rods are set at 90° opposition.

The motor, a Mike Rhoades 60 rpm, is spaced by three Elektrikit 1" Cores from a 1½" × 1½" Flat Plate bolted to the compound Strip. A Screwed Rod from one Core extends to another on the opposite compound Strip. A Rod passing through the fourth hole of the motor plate carries a 19t Pinion which meshes with the 19t idler Pinion, a 28t pinion meshing with a 25t Pinion on the motor output shaft and two 1" Bush Wheels outside the frame. These wheels each carry a lock-nutted Rod & Strip Connector with a short Rod sliding in a ¾" Flanged Wheel on the Sleeve Piece. A long Rod is journalled in two Flat Trunnions bolted to the chassis and carries two Cranks. Each Crank supports a shorter Rod which passes through the end hole of a 1½" × 1" Corner Bracket bolted to the compound Strips. A long Pivot Bolt screwed into one Crank accommodates a Swivel Bearing with a compound Rod extending to the front of the model (Fig. 4). Here, another Swivel Bearing is attached to a short Rod which pivots on a Rod located in two Collars bolted to the chassis. Pushing the Rod forward lifts the whole framework.

Propellers, passenger platform and boiler

The five propellers are identical. Bolted to each Single Eccentric are a Collar and a Threaded Coupling joined by a 1" Rod (Fig. 4). A long Pivot Bolt carries a Small Fork Piece and a Compression Spring and is screwed up against a Grub Screw pre-inserted into the Threaded Coupling. A very short Rod provides the pivot for a Strip Coupling which carries a Threaded Pin with ½" Pulley and Tyre. The Strip Coupling also carries a pivoted 4½" Narrow Strip which is bolted to the Triple Eccentric strap.

The platform support of 12½" Angle Girders is carried on a side framework of 12½" Braced Girders bolted to 12½" Angle Girders fixed to the upper chassis. At the front, a 7½" Angle Girder carrying two 3½" Braced Girders connects the 12½" Angle Girders. A driver's seat is made from two Flat Trunnions bolted to a 1½" Angle Girder bolted to the upper chassis (Fig. 2). Alongside, stair access is provided by a series of Girder Brackets and 2" Angle Girders. The platform consists of five 5½" × 2½" Flat Plates joined by a 7½" Flat Girder with a central rear well with sides formed by two 4½" girder brackets. They each carry a 4½" Angle Girder which support the well floor, a 4½" × 2½" Flat Plate. The well front is a 2½" girder bracket. The platform accommodates the seats and railings evident in Fig. 2. Under the platform is a Yuasa NP2-12 Battery held in place by four Reversed Angle Brackets (Fig. 4) and a motor on-off switch is located behind the seats.

The boiler comprises Flexible Plates formed around a 2½" circular girder at each end and is

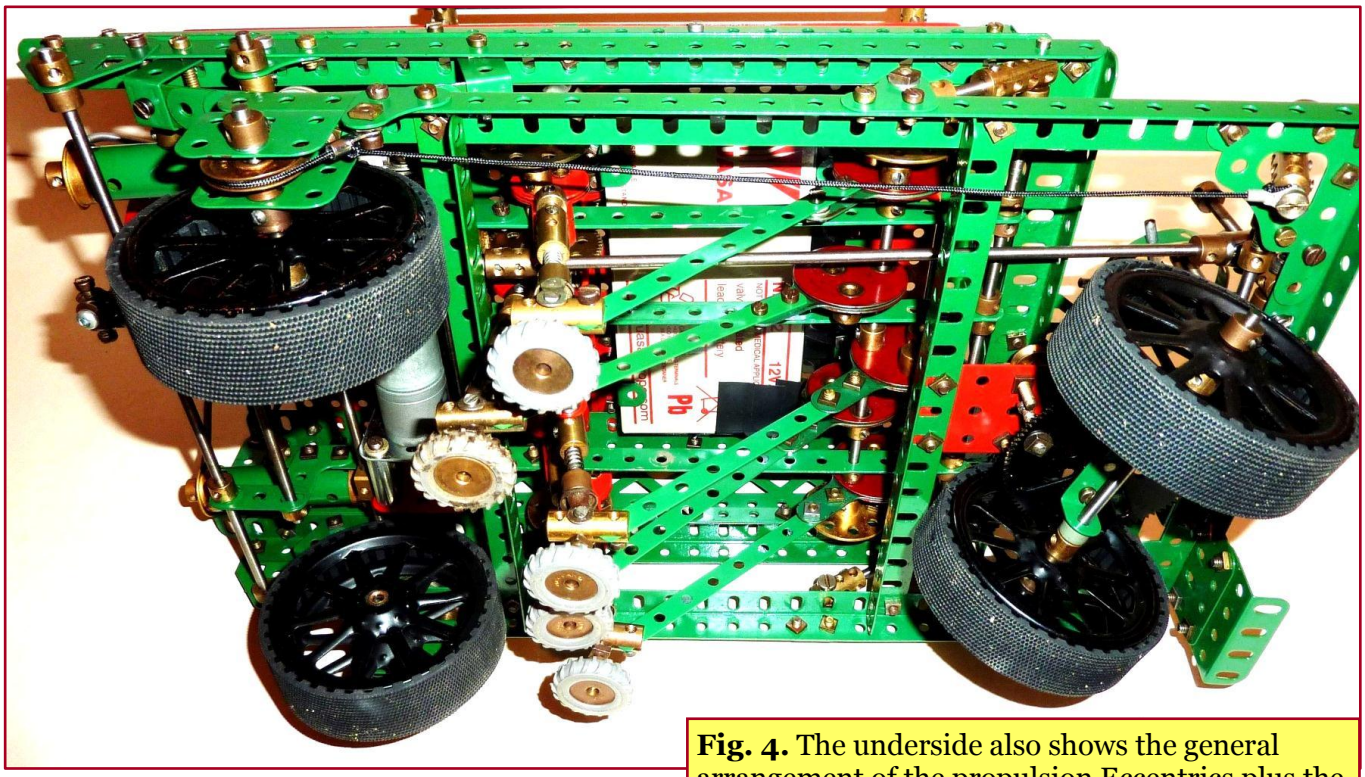


Fig. 4. The underside also shows the general arrangement of the propulsion Eccentrics plus the brake to the rear right wheel and the front axle.

bolted to the well's bottom plate. A Face Plate is fixed to the front end and carries a Rod with a Collar at its rear end which sandwiches another Face Plate against the rear circular girder. The chimney is located by a long Threaded Pin bolted to the boiler and rests on a 1½" × 1½" Flanged Plate. Two steam pipes locate in Collar threads and those of the ¾" Flanged Wheels which slip onto the rear of the cylinders. The whole platform is attached by Bolts in the captive threads of two Couplings bolted to the front 7½" Angle Girder and is removable to allow easy battery charging.

Construction notes

An interesting model! The feet must be positioned such that at the bottom of the travel on the Single Eccentric the spring is slightly compressed. A height adjustment can be made to the ½" Pulley on the Threaded Pin. The real fun comes in setting the Eccentric timing but a bit (lot?) of patience will sort it. The motor must rotate the crankshafts *clockwise* when viewed as in Fig. 3. The model makes it clear why Mr Gordon gave up with this idea.

Ken Ashton

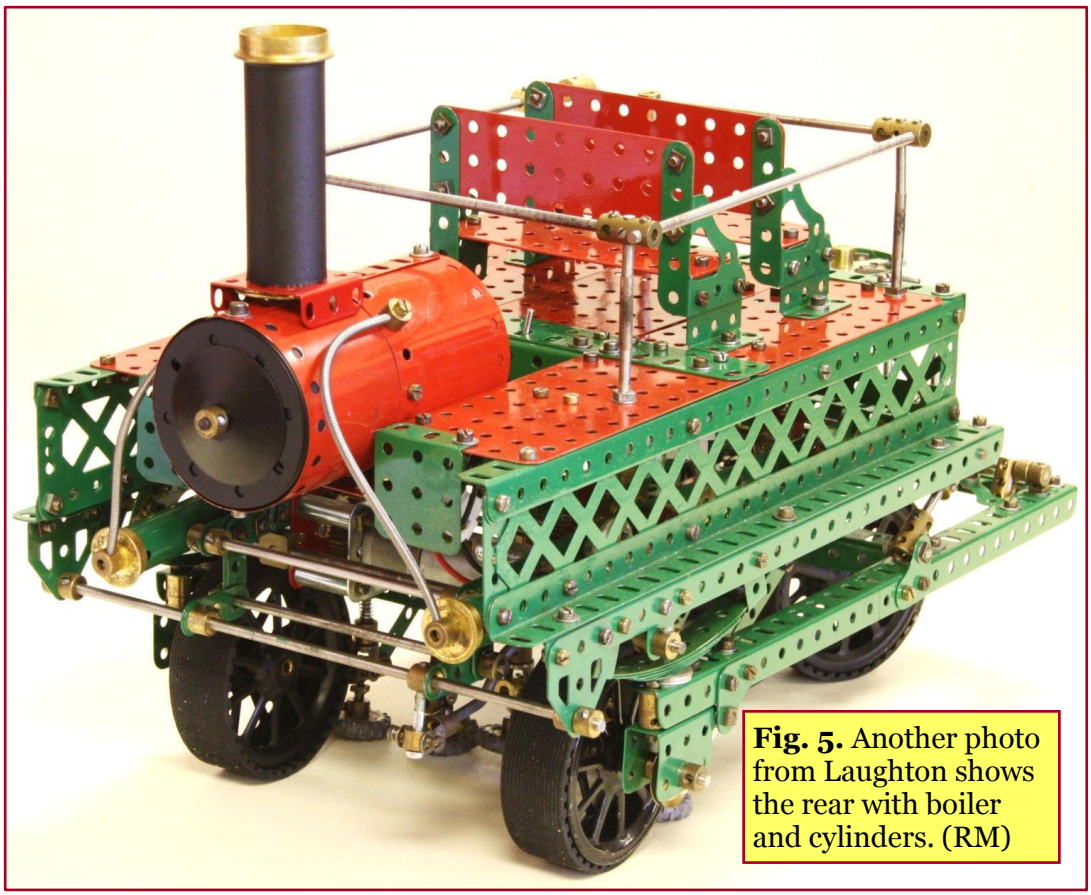


Fig. 5. Another photo from Laughton shows the rear with boiler and cylinders. (RM)

Coming up in SMGJ131: Brunton's Steam Horse

Arduino and Meccano

Russ Carr's easy introduction to a miracle of modern technology

What is Arduino?

To quote from the website: *Arduino is an open-source electronics platform based on easy-to-use hardware and software. It's intended for anyone making interactive projects*. 'Open-source' means both the hardware and the software are free to use and free to copy. There is a plethora of suppliers providing straight copies of the original boards and developed versions with extra features. Note that although open-source, the Arduino name is copyright so alternatives usually use a derivative: 'Funduino', 'DCcduino'...

The 'Uno' board

This is the best one to start on as it's cheap, has enough input and output pins for most Meccano projects you are likely to attempt and, best of all, most of the programming on the Web is based on the Uno board. A genuine board will set you back around £20 from Maplin but a Chinese version (sold as 'Arduino compatible') can be had for £3 if you are prepared to wait the three weeks delivery from China.

What can you do with your board?

A program is written on the computer then loaded onto the board via a USB cable. Once the program is loaded it stays in memory, even when powered off, until overwritten by a new program. The board can control motors, lights, accept inputs from switches, potentiometers and sensors.

Power supply

This can be via the USB socket (from computer USB port or USB phone charger) or using the on-board regulator, 7-12V via the power socket or 'Vin' pin. I prefer to power via the USB because there is no chance of incorrect connection damaging the board.

Pins

There are six analogue input pins and fourteen digital (on-off) input-output pins of which six can provide PWM output (Pulse Width Modulation - see *The Illustrated Meccanoman's Dictionary*, SMGJ131 - maybe).

Many will prefer to continue using built-up Meccano-ical sequencers and see little need to embrace the new technology. Others observing how microprocessors control every piece of equipment in the home and in industry, however, will wish to learn to apply this to their models.

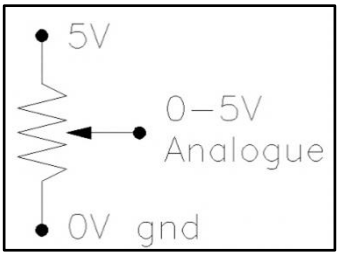
A first example

We will see how the Arduino can be used to control the speed and direction of brushed motors (i.e. typical Meccano) using a joystick or potentiometer. Your shopping list:

- Arduino Uno.
- 2× L298 motor driver board.
- 2× PS2 joystick.
- Male and female headers.
- Connecting wire.
- Solderless breadboard.

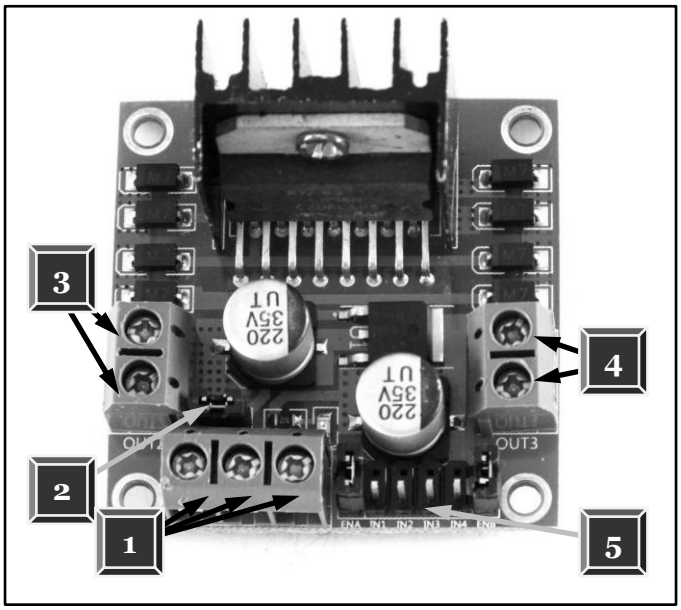
For experimenting, it is convenient to mount the components onto a piece of wood or MDF. For the connections, 7/0.2 flexible wire is best for the soldered joints but solid 0.6 wire is good for prototyping as it will push directly into a female header or the breadboard. The wire can be conveniently bought in a pack of mixed colours.

Now comes the interesting bit



To control speed we use a potentiometer (shown diagrammatically, right) and this could be rotary, linear or, for real fun, a joystick with 'x' & 'y' axis potentiometers and push-button switch. The potentiometer does not control the motor directly; it instead outputs a control voltage read by the Arduino which is then mapped by the processor to produce an output dependent on position.

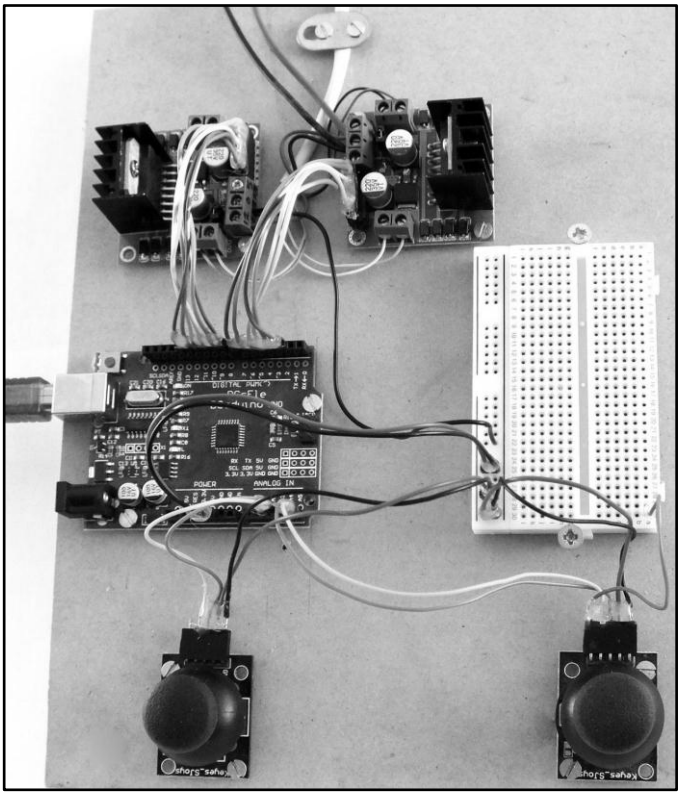
The L298 motor driver (below) contains two 'H' bridges - the transistorised equivalent of a DPDT switch for reversing and is suitable for 2A per channel.



1: supply connections. 12V (max) motor supply, ground, 5V logic supply to power the chip.
2: jumper. If motor supply is greater than 7V, the onboard regulator will produce the 5V logic supply. This 5V is available at the power terminal and can be used to power the Arduino. If the motor supply is less than 7V then the jumper is removed and a separate 5V supply must be connected to the power terminal.
3: connect motor here.
4: connect second motor here.
5: control connections as follows...

En	In1 (In3)	In2 (In4)	Result
5V	5V	0V	Forward
	0V	5V	Reverse
	In1 = In2		Brake
0V	Ignored	Ignored	Free-running stop

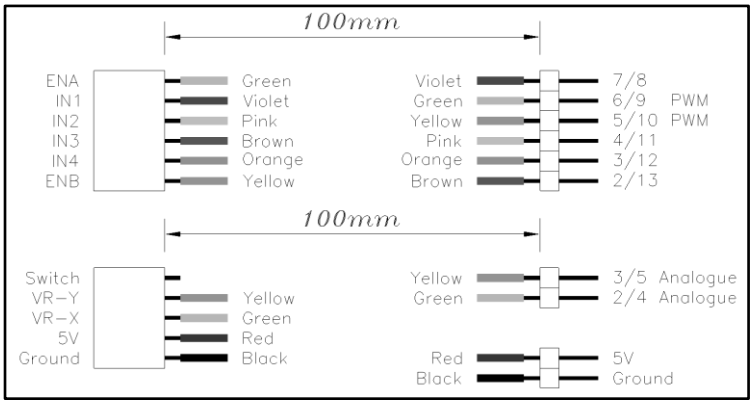
Two input pins per channel, one high (5V) and one low (0V); reversing these reverses the motor. The two jumpers connect the enable pins to 5V for full-speed running. Remove the jumpers to control motor speed by PWM.



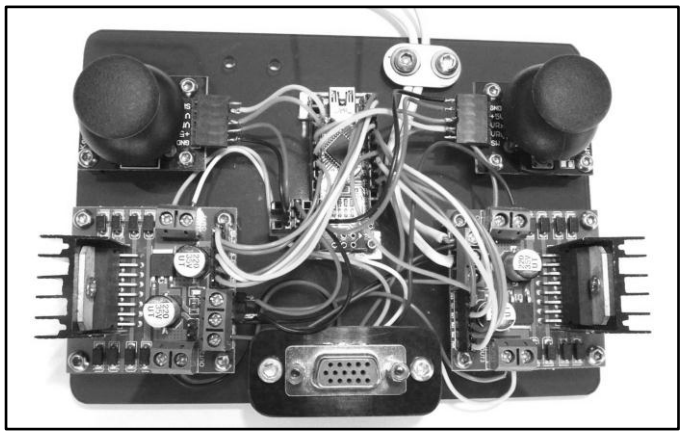
Shown above is a controller for four motors using two joysticks. The white multicore cable entering at the top goes to the model whereas the dark wires are from the power supply for the motors. A breadboard is used on the right to connect the 5V supplies for the joysticks only.

Arduino requires 5V to function. As mentioned earlier, this can be via the USB connector or a regulated 5V supply (such as from the L298 5V connector, also mentioned earlier) to a pin marked 5V on the Arduino. Alternatively, 7-12V can be connected to the input jack or the pin labelled 'Vin'. Be sure to use a regulated power supply or batteries. Do not use a transformer-rectifier as the peak voltage will be much higher than 12V.

For experimenting at home, connections can be made with solid core wire but for reliability, make up two each of the connecting cables as below:



The first connects the L298 boards to the Arduino. Pins are as labelled and the ENA/B jumpers are removed. The second connects the joysticks, also as labelled. Note that the Arduino ground and both L298 grounds *must* be connected. Once you have your controller working, you could build it into a case or, as I have, onto a piece of Perspex, below.



Finally, program the Arduino

Easily done via your PC. Perhaps this is the right time to involve an after-school club or grandkids?

References

Visit the Arduino website at:

https://www.arduino.cc/

Go to the download page and install the software. A useful booklet can be found at:

http://playground.arduino.cc/uploads/Main/arduino_notebook_v1-1.pdf

The L298 datasheet can be obtained here:

http://www.st.com/web/en/resource/technical/document/datasheet/CD00000240.pdf

Hints and example code

The complete code is a little long to include here but can be obtained from the author (Assistant Ed, page 2). I will, however, give some tips then a sample code:

- Identify the motors as 'A', 'B', 'C' & 'D'.
- Pin names must not start with a number.
- The 'analogue read' input converts the voltage from the joystick (0-5V) to a value of 0 - 1023 therefore the mid position (2.5V) is 512. To allow a small dead zone, use a value between 508 and 516.
- The PWM output is 0 - 255.
- We 'map' the joystick reading to PWM output where 0 input = full speed reverse = 255 output, 508-516 input = stop = 0 output and 1023 input = full speed forward = 255 output.

We can change the maximum speed by setting an upper limit. We can also change the value for minimum speed so that rather than starting from zero, the slowest speed can be a crawl which is useful for heavy models that need a threshold before moving.

The following code is for one single-axis joystick and a single motor. For four motors, the code is repeated with the additional motor and pin numbers inserted. Text preceded by '//' may be read by humans but is ignored by the Arduino.

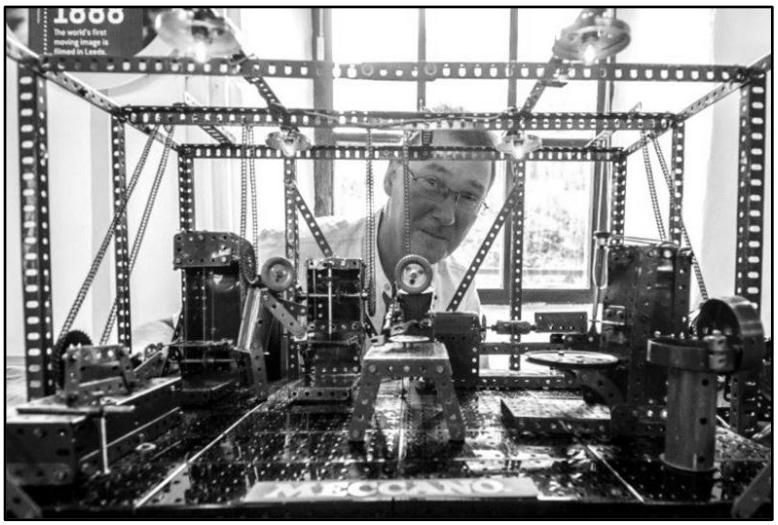
```
//Motor Control with Joystick

//L298 #1
const int in1APin = 8; //Motor A
const int in2APin = 11; //Motor A
const int enAAPin = 9; //Motor A

//Joystick #1 analogue read
const int joystickXA = A3; //Motor A

int speedA;

int joystickXAposn;

void setup()
{
Serial.begin(9600);

pinMode (in1APin, OUTPUT);
pinMode (in2APin, OUTPUT);
pinMode (enAAPin, OUTPUT);

 pinMode (joystickXA, INPUT);
}

void loop() {
// put your main code here, to run repeatedly:

// joystickXA, L298 in1A, in2A, enAA, Speed A

joystickXAposn = analogRead (joystickXA);
Serial.println(joystickXAposn);

if (joystickXAposn < 508) //Reverse
{
speedA = map(joystickXAposn, 0, 508, 255, 0);
analogWrite (enAAPin, speedA);
digitalWrite (in1APin, LOW);
digitalWrite (in2APin, HIGH);
}

else if (joystickXAposn > 516) //Forward
{
speedA = map(joystickXAposn, 516, 1023, 0, 255);
analogWrite (enAAPin, speedA);
digitalWrite (in1APin, HIGH);
digitalWrite (in2APin, LOW);
}

Else //Stop position
{
analogWrite (enAAPin, 0);//Soft Stop
digitalWrite (in1APin, LOW);
digitalWrite (in2APin, LOW);
}
```

Russ Carr

The Steam Toys North and Meccano Exhibition

Bob Watson reports on a successful show

Held at the Leeds Industrial Museum (Armley Mills) on 23rd July, this was the fourth invitational opportunity for SMGers to display their models and what a cracking day it turned out to be... Having arrived a little early (ahem!) and the gates being opened by the caretaker, I was pleased to notice several barges on the adjacent Leeds to Liverpool Canal, the passengers enjoying the morning sun. Great to see it in use but couldn't fail to notice that section at least was in need of underwater vegetation and overhanging trees being cleared. Six of



Local newspapers like their clichéd pictures although this view of Paul through his workshop is a change from the builder pointing a Spanner at a model. (*YEP*)

our enthusiastic members plus helpful 'other halves' took part and were provided with nine tables which were suitably blended amongst some large museum exhibits in a wonderfully light and airy room. In no particular order, the following is an account of who displayed what.

Stefan & Agneska Tokarski brought several of his WWI models from early Manuals, a very large 'Tricky Track' wheel (due for demolition), Kirow bridge-building machine and a superb Meccano-Märklin heavy-duty Swiss loco. Unfortunately, no-one had any superglue to repair the driving band for Stef's rendition of Graham Jost's Perpetual Baller Roller (see CQ117). A hand-operated 'Slinky Juggler' (CQ115), however, provided much amusement for visitors both young and old.

John Wilson took great pride in exhibiting his much-prized (pardon the pun) Newcomen Engine (another due for demolition) which attracted a lot of attention from the live steam enthusiasts on site. This was the first time I had examined the model in detail and the use of mint, seemingly powder-coated plates and uniquely-deployed Pozidrive fasteners was a joy to behold. I am already looking forward to John's next project which I'm confident will be another stunner.

Ian Brennand had travelled many more miles than the rest of us and again displayed his admired Citroën 'Petite Rosalie' (see SMGJ129 for an in-depth article) along with associated memorabilia. Ian has a flair for modelling in many spheres, which he used for his second model, a Citroën Kegresse half-track type vehicle, sprayed in a matt sand colour. Only six were produced, one of which was driven from Beirut to Peking - as you do! Fantastically detailed, the models had been recently admired at the Midlands Meccano Guild exhibition where Ian had been invited to display at the next Henley gathering.

Next was **John Bader** who showed his classic German twin rear axle Mercedes in, yes, you've guessed, nickel... with a touch of black 1960s platework. This was complemented by a slightly smaller but similarly well-constructed vehicle in modern blue. A third, first shown at this year's Skegex, was a steam tipping lorry built from French parts and nickel. This was a neat 'work in progress' model to which John said steering had to be added. Noting that John had used some early (and rare) die-cast wheels at the front I wondered if he might have any spares; no, I thought not!

Paul Robertshaw filled up his allotted space with a large Meccano workshop which was lit and motorised dually with an M.0 Motor and also a Mamod-Meccano Steam Engine which he was allowed to fire. I can't remember seeing one of these in action for a long time and it worked very well. Also present was an array of smaller Manual models, some of which sold like hot cakes, along with a very clean No.1 Clockwork Motor which is now destined for one of my future projects.

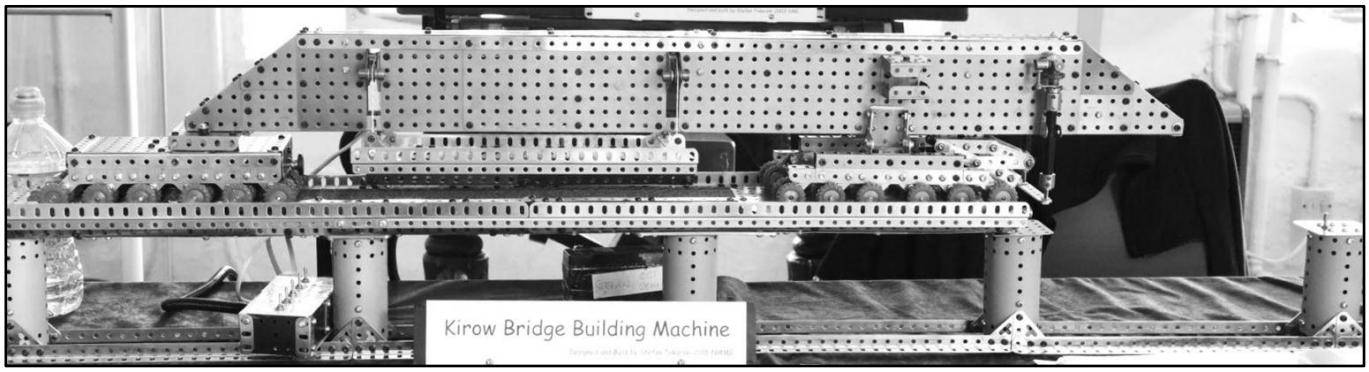
Your reporter took along two examples of the SML22 Traction Engine, one made from scrap red & green, the other from well-used blue & gold, both performing satisfactorily throughout the day. I also had two examples of Bedford lorry Manual models, neither of which are motorised but showing how different colour periods can be combined. My fairground steam engine was given an airing as well, the heavy-duty Driving Band thankfully bearing up as I didn't have a spare.

Attending as visitors were **Wayne & Gillian Stancliffe**. Good to see them and perhaps they could join us next year if we're invited again.

Arriving later was a photographer from the *Yorkshire Evening Post* who must have got wind of a scoop as he took loads of pictures of everyone, especially Paul 'posing till closing' Robertshaw who subsequently ended up pictured in the *YEP* website the next day (opposite). I also had a moment of fame (infamy?) as my mug went into print on page 9 of the said newspaper; oo-er etc!

Bob Watson

Stefan Tokarski's lengthy Kirow bridge-builder and one of his several pictures from Armley Mills at: **www.nzmeccano.com/image-115675**.



Building Giuseppe Servetti's Magician Part 3

An accompaniment to GSM32 by Rob Mitchell

Fig. 18

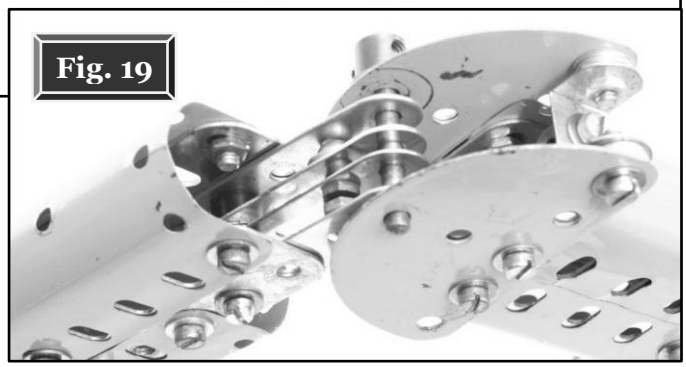


Fig. 19

Introduction to Part 3

This series is intended to complement GSM32 so the Sections are numbered to match. Note that 'left' and 'right' in the GSM are from the Magician's aspect and not when viewed from the front. **Bold** text references are internal to this series of articles; those in plain text are to GSM32. Part 1 in SMGJ128 contained **Figs. 1** to **13** and **Figs. 14** to **17** were in **Part 2**, SMGJ129.

3.6 Arms, Figs. 18 to 24

Deviations from GSM32 become more involved because, even before construction began, it was apparent that the arms had to be detachable for transport and to avoid inadvertent movements back-driving the four cranks, bending the linkages or worse. Particularly dubious was the Sprocket Chain to the forearm which instantly presaged trouble, again due to a cantilevered load and mechanical advantage of a long horizontal lever creating severe tension, the Chain links stretching, bosses slipping and forearms drooping; a rigid 'tendon' linkage through the upper arm was a better method. Also, the four 18t Sprockets at the elbow (135 in Fig. 11,) and shoulder (146 in Fig. 12) needed careful selection then pairing as their tapped holes had to be accurately positioned with respect to the teeth. The Sprocket 146 in the shoulder was on a cut-down Keyway Rod 145, a poor part best left in the box unless desperate. With all that lot taken into consideration, it is startling that the finished arms retained some resemblance at all to the originals!

The basic construction of Flat Girders covered by tons of butted 'U' Curved Plates was kept as in Figs. 10, 11 & 12 but amended multiple times as construction progressed to result in **Fig. 18** (right arm). The main change is the two-hole Curved Plate offset on the forearm to allow greater elbow movement and, by happy accident, a better 'wrist'. Exact placing of the lower Semicircular Plates was not clear (and apparently unimportant) so were an inverted copy of those at the shoulder. A Washer-packed ½" Double Bracket at the rear added reinforcement to the Curved Plates and a Crank holds the 1½" Rod pivot to remove about half of the sideways play, **Fig. 19**.

Fig. 20

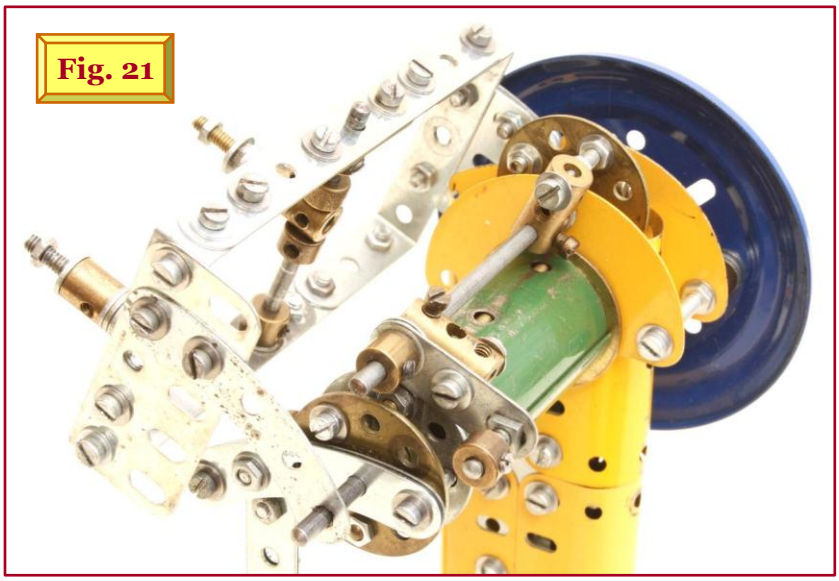


Fig. 21

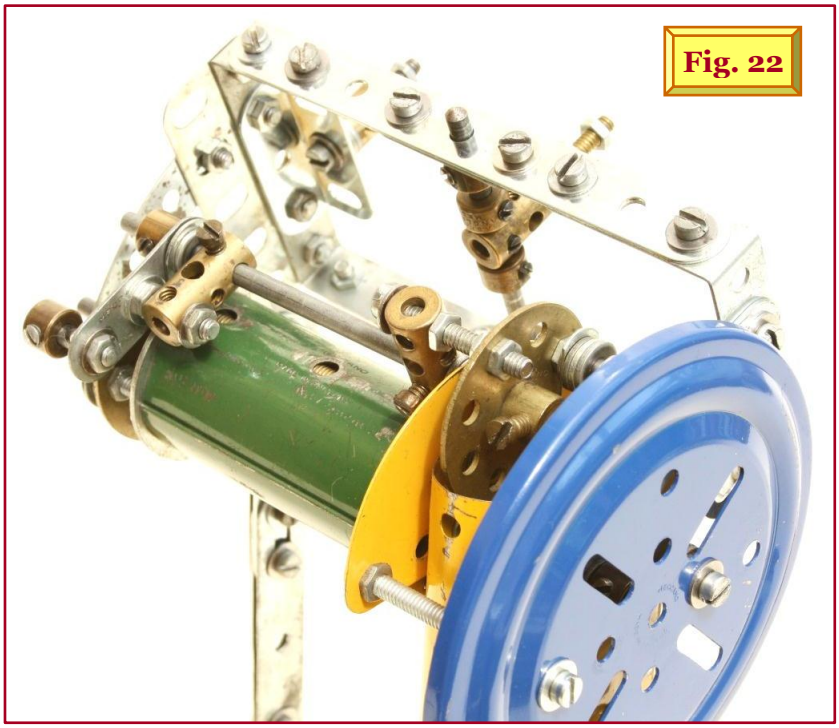


Fig. 22

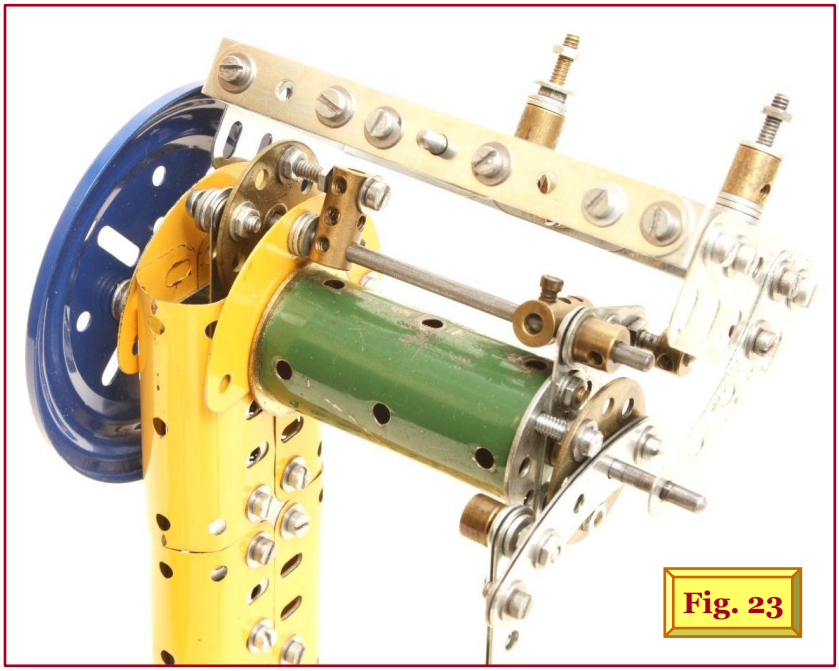


Fig. 23

In order to accommodate a linkage in lieu of Chain, the elbow ended up as **Fig. 19** rather than Fig. 11. With further reference also to the mock-up in **Fig. 20**, two 3½" Strips, not the prescribed 2½" (132) run deeper into the forearm and between them are two 2" Strips. A 1⅛" Bolt passing through

the forearm is stacked with the 2" Strip inner ends plus Spacers and Washers; the 2" Strip penultimate holes accommodate a captive Pivot Bolt forming an attachment point for the 'tendon' linkage. This then connects to a Pivot Bolt on a Bush Wheel between the upper Semicirculars and is made from three 4½" Narrow Strips each overlapped two holes. As internal clearances are tight, they use selected short Bolts with Washer packing for centring; Bolt picking is a benefit not enjoyed by Allen users as they are too consistent. To balance most of the extended load, a Tension Spring connects the 'tendon' by a pair of triangulated Fishplates back to a ¾" Bolt inside the upper arm pivot, **Fig. 20**. Clearances remain tight and some Bolts holding the Curved Plates may need moving (ringed in **Fig. 24**) or swapping for 'shorties' - a job for forceps. Also seen at the shoulder end of **Fig. 20** is a long Threaded Pin to mimic the pivot axle and two 2½" × 1½" Flexible Plates representing the topmost Curved Plates.

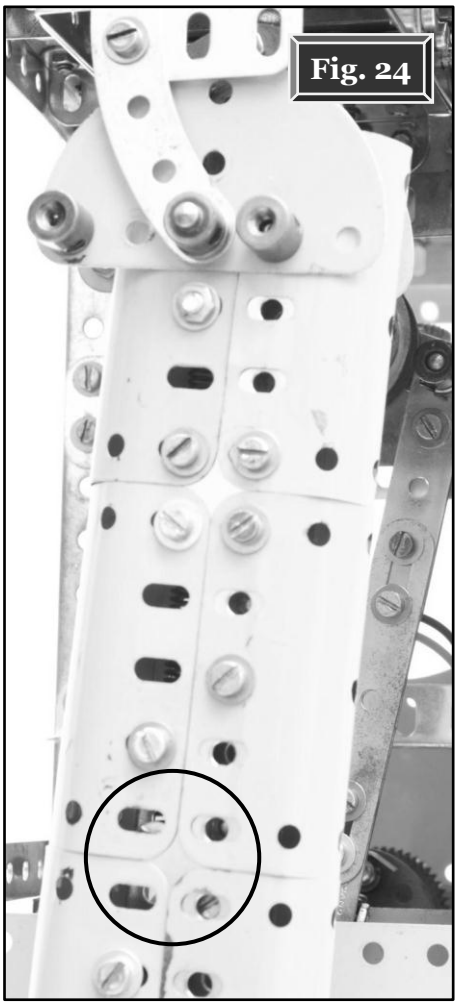


Fig. 24. Mentioned in the text is a change to the Bolt positions in the Curved Plates to clear the 'tendon' fixings inside; those shifted and removed from the regular pattern are ringed.

With arm removal and handling the large forces (short-throw cranks translated to long movements) firmly in mind, the shoulder underwent orthopaedic surgery from that shown in Figs. 12 & 24. The outermost bearing (Coupling 335 is the innermost for the right arm) was also shifted outwards to remove the large overhanging load inflicting a bending moment on the central Rod 139. The aim was to have a shoulder rotation axis in an identical position to GSM32 (Rod 139 again) but as a base frame fouled the arm's two input cranks 140 & 147, this failed and it ended up being ½" lower. Leaving a gap in the frame to allow clearance would have seriously undermined the rigidity of a well-loaded assembly. Plunging on regardless, it is now convenient - from a builder's point of view - to differ a little from the GSM's progression and follow a more logical order. **Figs. 21 to 24** show the new shoulder from various angles.

Each base frame has 4½" Strip sides and 2½" × 1½" and 2½" × 1" Double Angle Strip ends, the latter overlaid centrally by a 1½" and 2½" Flat Girder respectively then a 2½" Curved Strip. Inside the 2½" × 1½" Double Angle Strip is a 1½" Angle Girder secured by its round holes and using Curved Strips instead of plain Strips or Plates is revealed in **Fig. 24** - to avoid the rearmost Threaded Boss when the upper arm rotates. Through the Girder's centre slotted hole is a ⅜" Bolt with three Washers to a Threaded Boss holding a 1" Screwed Rod. When the whole arm is in place, this Screwed Rod occupies the same hole in the body as Threaded Coupling 336 in the GSM32's Fig. 24. The 4½" Strips are also bridged by a 3" Rod locked in two Double Arm Cranks and carrying a vertical Threaded Coupling with another 1" Screwed Rod which replaces the other, non-numbered outermost Threaded Coupling in Fig. 24. A Collar each side of the Threaded Coupling is useful for fine-tuning its location then keeping it there. Packing Washer quantities may need adjusting until the frames sit horizontally in the body but angled rearward a touch; hence the Threaded Boss position needs to be adjusted with respect to the Angle Girder as does the Threaded Coupling on its Rod. Four Fishplates are just seen at the bottom of **Fig. 14**, two each side of the neck; their unoccupied holes will receive the 1" Screwed Rods and, when all is well, the whole unit is retained by Nuts run down the Rods.

A well-clamped Cylinder lies at the heart of the shoulder redesign, mainly to shift the input cranks closer to the body's centreline and provide a large-diameter axle to better handle the torque. In GSM32, the drive comes off built-up cranks positioned too far from their bearings for my liking then through inclined, curved connecting rods to the shoulder cranks, Fig. 22. Except for the lightest of push-pulls, cranks and con rods generate high sideways forces unless all lie closely on the same plane and are straight. Construction requires further judicious packing with standard and M4 washers in stacked components. The builder also needs to keep a close eye on tapped holes in the four Bush Wheels as their Set Screws will be tricky to access as construction advances.

Before going any further, as this involves an internal Bolt soon to be rendered inaccessible, fix a

Threaded Boss to the outermost Semicircular Plate and one hole ahead of the centre hole, **Fig. 24**. For rigidity, **Fig. 21** shows the Semicircs connected at the rear by a 1⅛" Bolt, the tip having a second Threaded Boss, **Fig. 24**. With the careful packing in gaps to maintain parallelism in the 'sandwich', overlay the inner Semicircular Plate with a Wheel Disc, the Cylinder then another Disc (with a vertical 2" Strip); clamp the whole together with a 3½" (top holes) and 4" (bottom holes) Screwed Rods as if making a winding drum. With the 2" Strip's top hole aligned with those in the Semicirculars, the assembly needs to be pulled tight to resist twisting for which the parallel packing alluded to earlier is essential. A 5½" Rod passes centrally through the lot, its tip (with Collar) seen in **Fig. 24** and indicated by the Threaded Pin in **Fig. 20**. To actuate the forearm, a 3½" Rod rotates in the 2" Strip and inner Semicircular Plate; one end carries the 'tendon' Bush Wheel and behind the Plate is a Coupling. Be warned that without the forearm in position, the internal Tension Spring will fight back when placing the Bush Wheel. The boss and Coupling each have *one* well-tightened Set Screw as, contrary to popular opinion, a second adds next to nothing (Alan Partridge's *Techniques of Meccano*, referenced in Part 1). As explained in *ToM*, doubling parts does double the bite on the Rod! To make the Bush Wheel and Coupling behave as one, a 1⅛" Bolt with carefully-placed Nuts does the honours. A similar arrangement is used over the 2" Strip with the Crank, the latter having a Threaded Pin for the connecting rod.

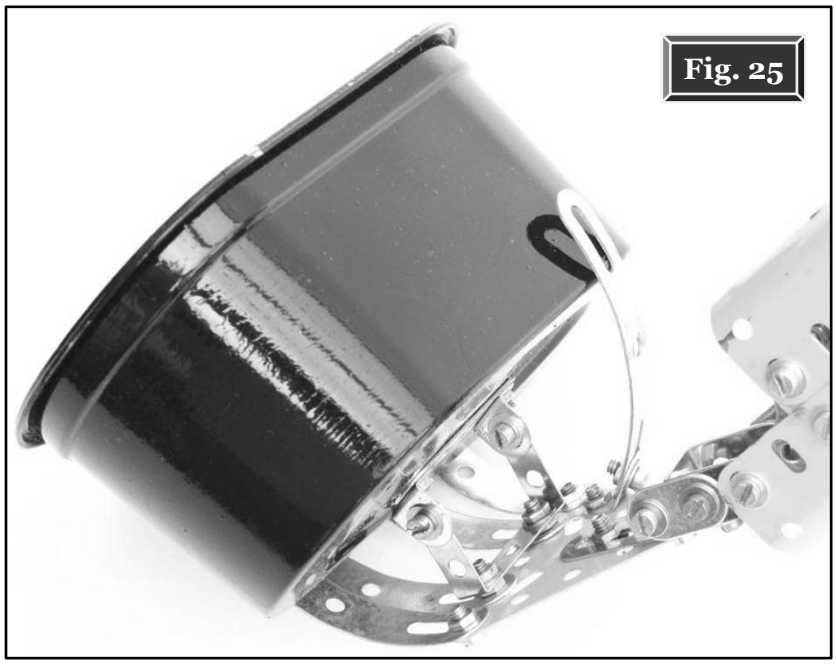


Fig. 25

Like GSM32, upper arm movement is by the crank made from a pair of 2½" Curved Strips plus a Threaded Pin fixed to a Bush Wheel by one Bolt (uh-ho but the axial Rod stops it shifting.) The Bush Wheel should slip over the 4" Screwed Rod's tip to be retained by Nuts and has a ¾" Bolt to engage the Wheel Disc. The central 5½" Rod is then journalled in the frame's two 2½" Curved Strips and is positioned so that the outermost Curved Strip runs close to the Semicircular Plate. With further Washer packing as required (a couple per Bolt should do), the Flanged Disc cover is fitted to the two Threaded Bosses as per Fig. 12. There was no room for curved Flexible Plates 154 over the shoulder and they seemed superfluous so were omitted.

Although somewhat complicated, the completed new shoulder has the added advantage of relieving the 5½" Rod of the large torque with associated boss slippage which is now transmitted at a larger radius through the Cylinder wall. Also, all rotating parts have effective doubled fixings to their Rods and non-planar links will be less non-planar! With the right-hand shoulder done, tackle a left-handed copy.

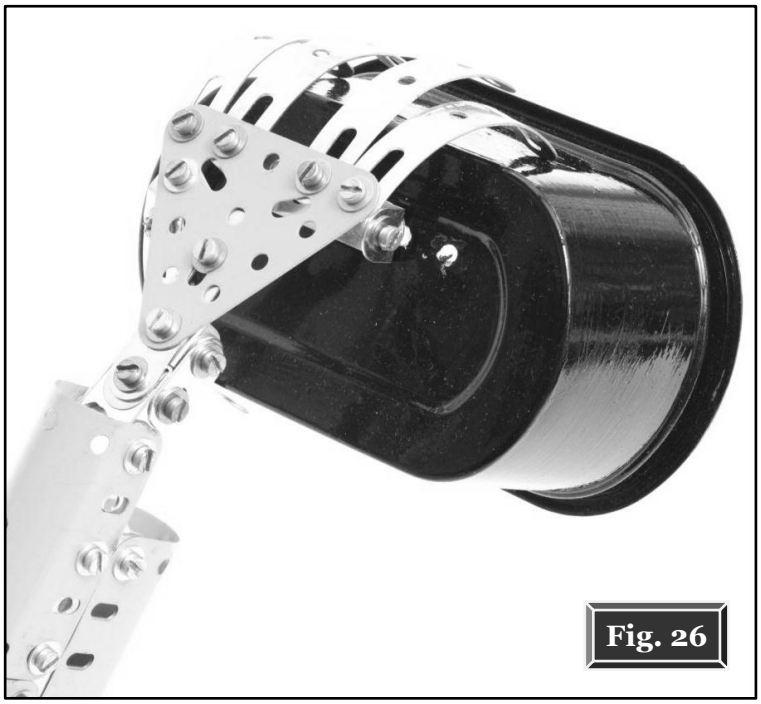


Fig. 26

3.7 Hands, Figs. 25 & 26

These look more like an alien's claws from a 1950s science fiction film than human hands, Fig. 10, so were ripe for changing. Using five Formed Slotted Strips instead of four, each 2½" Triangular Plate gained a thumb at the rear and four fingers at the front - handed, of course. A full complement of digits also better concealed the 1½" × 1" Narrow Double Angle Strip in the palm which secures a box to the hand and make it appear to be held. Each

hand is fitted to its respective arm by a series of small parts. Inside the offset 'U' Curved Plate are two 1½" × 1" Corner Brackets, their tips bridged by a 1" Double Bracket with suitable Washer packing. Two Angle Brackets and a Fishplate connect the latter part to the 2½" Triangular Plate. Fiddling with this combination of Brackets and slots should allow sufficient freedom for the boxes to cancel out the small angle at the shoulders then land squarely and centrally over the apertures (**3.18**) in due course.

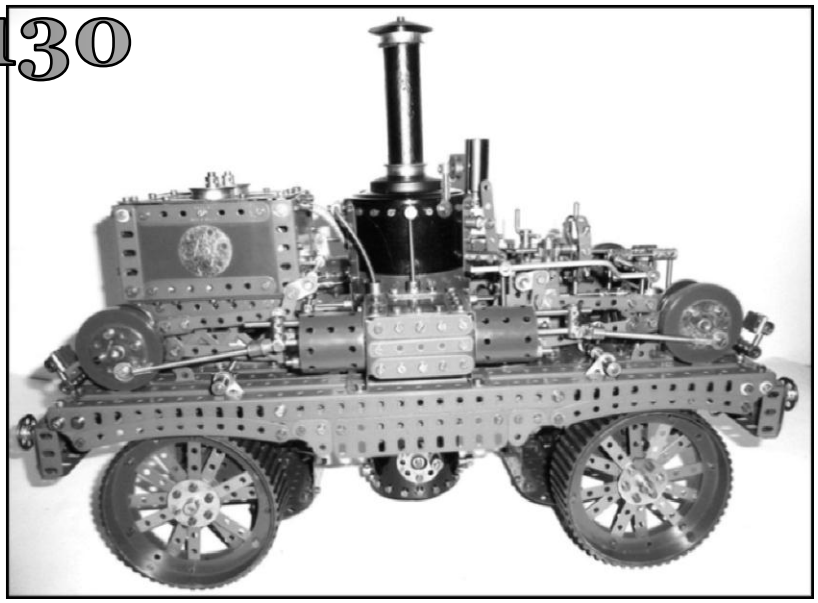
3.8 Boxes, Figs. 25 & 26

The folded-taped card developments in Fig. 13 were replaced by margarine tubs as these are fairly strong and lightweight. A line of holes at ¼" centres (to allow positional fine-tuning) were soon cut in the base to allow the position to be accurately set with respect to the hand. Each tub was gently abraded and treated to a coat of gloss black paint. When dry and with a 2½" Strip stiffener inside and out, two Angle Brackets were bolted to the Narrow Double Angle Strip in each palm. The tubs actually used had rounded ends and those which are squarer (Bertolli; other brands etc) would have more effectively covered the apertures in the table top.

Rob Mitchell

To be continued.

Miscellany 130



Why didn't it work?

While checking SMGJ129 and earning his keep by apprehending some deeply-hidden gaffes, **Russ Carr's** interest was piqued by a caption in Ken Ashton's Law & Downie Road Locomotive. As a reminder, it read:

…the premise was that on each side of the locomotive the two cranks would be driven by connecting rods to a common piston. Correspondence to the 'Mechanics Magazine' pointed out that this could not have worked.

Russ said *I'm intrigued why! Heat expansion of the connecting rod or dynamics due to non-sinusoidal rotation?* Have another look at Ken's Fig. 1 (repeated above) and decide for yourself. Your Ed favours the following scenario: one double-acting cylinder per side with a piston in the centre where the model has two; a connecting rod from each crosshead to the crank pins, a coupling rod to the pins. There would be a toggling force during each stroke and the whole would instantly jam. If, however, a single cylinder had two independent, opposed pistons as in a 'Deltic' engine then it could work.

Ouch: 129's howlers

Notwithstanding Russ' stern checking, the second chunk of John Wilson's *Steam Power for Industry* managed to retain the page header carried over from use of the 128 template. This was spotted at the proofing stage then corrected but due to editorial incompetence, didn't end up in the final version. Not good, especially considering the effort expended by John. There were also a couple of swapped captions (affecting Wayne Stancliffe, 48 & 49, pages 18 & 19). John and Wayne reside in West Yorkshire and can be assured that dud headers and transposed captions aren't revenge for that county's regular thumping of the Mitchell contest entries. Should you fancy searching, a rogue double space lurks elsewhere.

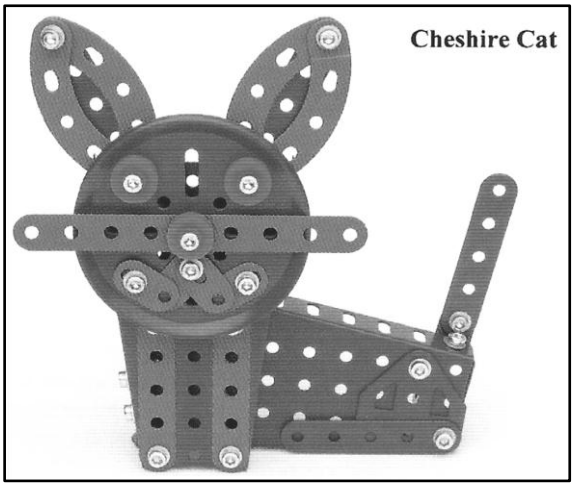
New members

We warmly welcome from the non-SMG Meccano wilderness **John Evans** (Powis, UK), **Aubin Fanard** (Hamme-Mille, Belgium), **Nick Forth** (North Yorks, UK), **Malcolm Goodwin** (Essex, UK), **Richard Smith** (Bristol, UK) and **Keith Summerhill** (Cambs, UK). May our association be long and mutually beneficial.

SMGJ129's feedback

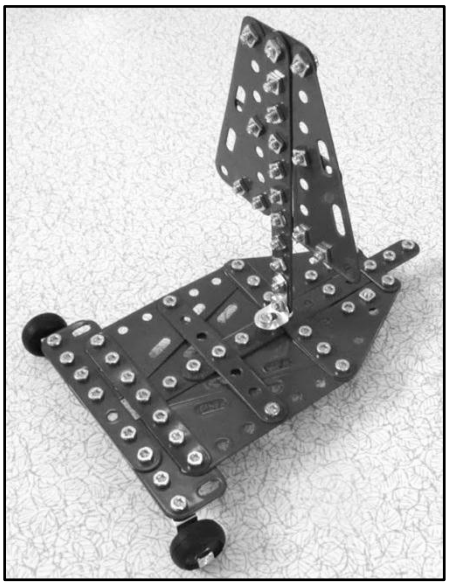
As many were handed out during the NEMS June meeting at Crakehall - with permission, of course - **Brian Chaffer** was the first to give 129 a 'thumbs up'. He was swiftly followed by **Alan Blair**, **Geoff Brown**, **John Evans**, **Graham Jost**, **Guy Kind**, **Ken McDonald** (can't imagine why!), **Nick Rodgers** (well versed in life at the RMG's own editorial sharp end), **Colin Reid**, **Robin Schoolar**, **Richard Smith** (who raved about David Miller's catering at Laughton when he and Pete Evans visited us in April) and **Bob Seaton**.

From **Mick Burgess**. *The meeting report was exceptionally good as you had a very good team of reporters on the day. Re page 57, I still think it is Richard Stevens; perhaps another West London MS member could confirm. If it is Tim Covel they must be like twins!* Being privy to the draft sent his way for illustration purposes, Mick was also quite enamoured with the first part of Ron Pitches' tale as was Graham Jost.



From the champion of small characterful models, **Bernard Périer**. *In issue 129, a photo of a black & white cat was published on page 14. While I am glad to learn that the moggy has caught and devoured a fish, I would have been happier if the text had mentioned that I am the creator of this 'Cheshire Cat' published in CQ75 (March 2007), page 7. Apart from that, I find your magazine very interesting thanks to the pictures of models shown at various Meccano exhibitions.* As is right and proper, we always strive to acknowledge the original designer and having had a look, your Ed can confirm that CQ75 has the 'Cheshire Cat' (above), Bernard having worked multiple wonders with the 37-starved 'Vintage' set. The set was also clearly short of Loom Healds.

By e-mail, **Jean-François Nauroy** wrote *I just received the 129, dense and beautiful as usual and it makes me want to go to Laughton-en-le-Morthen! Aurélien Degano, builder of the AT-AT, is one of CAM's promising youngsters along with Maeva.* An example of Maeva Azaïs' work is included in our Garges coverage starting on page 4.



Alan Lovett wrote *Another cracking issue and I've never seen my name mentioned so many times! Will my gearbox article be in the next issue?* Possibly, Alan: page 26.

After a month of global gallivanting (termed a 'little holiday'!), **June Booker** sent us a proper letter. *A note to say what an amazing SMGJ the June 2017 was. I so enjoyed reading and seeing the wonderful Meccano models you have constructed. The colours stand out so well, also the kind words said about me. I attended our Sydney Meccano exhibition in April with a tribute for Malcolm - his new Eiffel Tower, narrow-gauge locomotive & coach, veteran Rolls-Royce, his Meccano hat with all his badges, jumpers and photo. I also did the same for the North Shore Railway Modellers' exhibition in March. I am donating Malcolm's last model, a railway breakdown crane (Tony Parmee's model) to the Power House Museum where they already have most of his models on display in glass cases. I think it would really look marvellous if others can see and enjoy. I thought about you all on the Skegex weekend and hope it all went well.* Our pleasure June and Skegex indeed 'went well' as related near the end of this edition.

Douglas Windibank

A round-up of general items isn't the most respectful place to announce the loss of a Meccano enthusiast and is more a reflection that it is at times like this when one realises how little is really known about a person which makes it difficult to write a fuller tribute. Nevertheless, we note the death of Douglas Windibank in May. Living in London, distance meant Douglas never attended an SMG meeting but was a long-term supporter, an enthusiastic letter always accompanying his annual membership renewal. Douglas was a regular at some of the London-based clubs so with thanks to Nick Rodgers, the following is adapted from RMGM94. *He will always be remembered for attending meetings and Skegness pulling along a suitcase packed with models. He wasn't particularly keen on the dark red & green or blue & gold eras; for him it always had to be the very latest models with the brightest colours.* An e-search shows a preference for the smaller manual models of various vintages as well as recent production. Douglas was also a regular contributor to the SELMEC Secretary's Challenge and an example of his work is shown here; a sand yacht made from a 'Red Arrow' set for the 2014 'Something else' challenge. On behalf of the SMG: 'bye Douglas.

A day at the Crakehall races

NEMS's John Herdman has announced the rules for their annual contest due on 9th December 2017.

Should anything need further explanation then please consult with him, page 63.

Object. To create a four-wheel electrically-driven dragster, the winner being the fastest. At first glance this may appear to be too simple but it will be interesting to see the number of variations which turn up and, being fairly straightforward, its appeal should provide a large number of entrants on the starting grid to add to the fun!

Judge. To be determined on the day.

Rules.

1. The entry should be exactly 12½" long but protruding Bolt heads will not disqualify.
2. All parts to be standard unmodified Meccano.
3. The entry should have four wheels on two axles with *one* driven axle.
4. The total entry weight including batteries must not exceed 1.0 kg, 2.2 lb.
5. Power will be by a Meccano M.0 Motor, either round or tri-flat shaft and to be the later type connected to a four-cell enclosed Battery Box which takes four AAs and has an integral switch. No modification to this will be allowed.
6. One reduction stage only between Motor and the driven axle which can be Driving Band, Gears or Chain.
7. Four AA 1.5V or rechargeable 1.2V batteries must be used.
8. The race track will be the full length of the main hall. The length is unknown but as the entries are to be free-running, electrically-driven and covering the same distance, the actual length is unimportant. An exact distance can be measured at the September meeting. The floor is smooth without carpets.
9. Entries will be started using the on-off switch at a given signal.
10. Each contestant is allowed one entry only and must be in attendance.

It is customary for contestants to name their entry which reflects its attributes - or the builder's attitude! It would be helpful if each were accompanied by a brief description detailing the design criteria and handed in before the competition commences. Good luck!

The Southern California Meccano & Erector Club

Gloomy news kindly relayed by **Jean-François Nauroy** was that on behalf of the SCMEC, their Secretary Anton Calleia has decided *…to lower the flag and turn off the lights*. After 42 years, the club had suffered a decline in membership so has been wound up. The Internet is the inevitable scapegoat, the SCMEC's *raison d'être* of fostering correspondence between thinly-spread Meccano enthusiasts having been displaced by e-mail etc. Anton's final fling was the 150th edition for July 2017 (below) where under the *Our club is no more* headline is Margaret Massingham's famous sewing machine as built by Charlie Pack with a nice mention of the SMG and Barrie's President's Trophy. Question: which club is next?

SOUTHERN CALIFORNIA

Meccano & Erector Club

NEWSLETTER

Final Issue (No.150) July 2017

Our club is no more

In its 42 years of existence, the Southern California Meccano and Erector Club provided a unique connection among Meccano enthusiasts in the United States and helped overcome their isolation from the worldwide Meccano community. The Internet, with its numerous Meccano-related web sites, now performs that function better than our club ever could. It is our hope that the personal friendships which were formed among our members, and with Meccano hobbyists worldwide, will outlive our club.

Those of us who were members since the club's creation in 1975, shall always remember with gratitude the friendship, encouragement and assistance we received from Meccano clubs and their members around the world. To all a heartfelt thank you.

(Continued on Page 4)

Treadle Sewing Machine Model

By CHARLIE PACK
Los Altos Hills, CA

This model was adapted from a plan first published in *Constructor Quarterly* No. 99 of March, 2013. Its creator is **Margaret Massingham** of Norfolk, UK. It was awarded the Sheffield Meccano Guild's "President's Trophy" in October, 2012.

The prototype sewing machine would have been operated by the treadle mechanism, which is duplicated in the model..

The lock-stitch sewing machine in use today is the result of a number of patents issued in the first half of the 19th Century. It was made popular in the United States by Singer and others around the 1860's.

My model follows the original fairly closely, except for choice of colors and modified drive system. It is intended for running in an interactive display environment. The motor and batteries inside the base drive the machine through a triple-stage belt reduction.

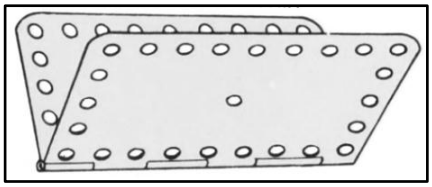
Power comes from a small MO motor running on two D-size flashlight batteries (3 volts). A push button is provided so visitors can operate the machine.

Inside the sewing head, the needle is represented by a vertical rod that moves up and down. A one-inch pulley on this rod is acted upon by a bolt on a rotating collar acting as a cam. This cam is fixed on one end of a rod which extends horizontally to the drive pulley on the right side of the sewing head. When running, the machine makes a ticking sound like the real thing!

To see detailed high-resolution photos of this model, go to **nzmeccano.com/image-105630**. Click on the thumbnail of an image you want to see. Click again on the larger photo to see the full size. It's free, and you don't have to log in.

The SMG's Annual General Meeting

Our 21st October 'Laughton Day' is where the Committee is renewed or, by past performance, immediately reinstated. Bob, John, Rob and Russ are all happy to continue for the 2018 subscription year although that does not mean a volunteer can't have a go instead. Should you wish to be selected by those present for any of the four positions then please let Rob know, page 2. Other highlights will be the presenting of the SMG Members' Award and the President's Trophy, the former by voting and the latter by the thoroughly autocratic method of whatever Barrie likes on the day.

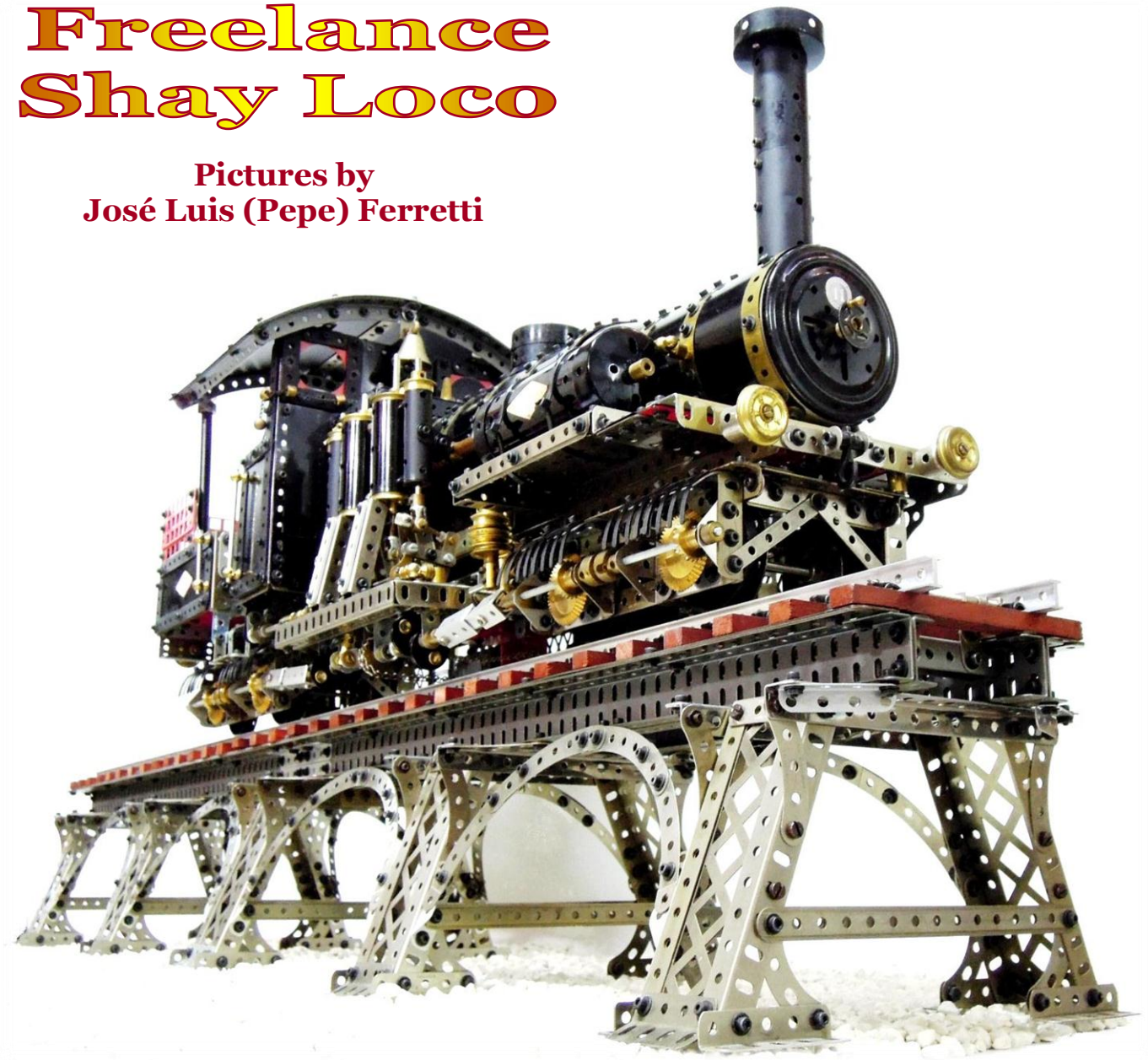


October's star part

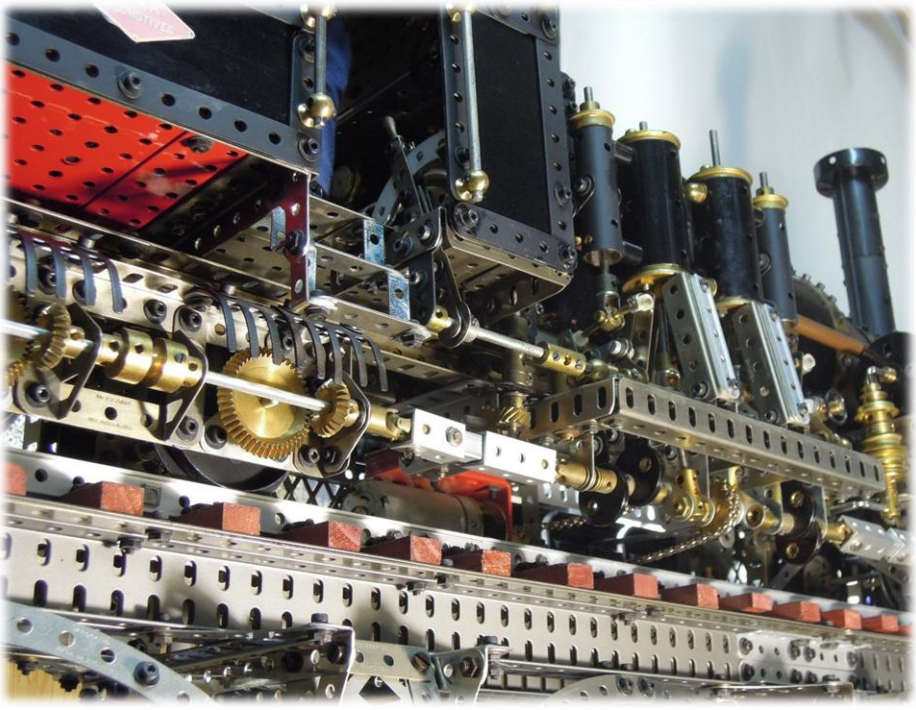
After scant deliberation, the next overlooked Meccano part to have it status raised by the SMG at an October gathering is: the Hinged Flat Plate. As per previous escapades, the plan is simple enough; dig out one or more 198s, build something which makes novel use of it/them and present your (un)hinged handiwork at Laughton on 21st October. If unable to be there, a picture to the Editor, page 2, would be grand. The term 'novel' automatically discounts 198s as pitched roofs and knocking out the pin to make two odd flat plates as endorsed in Manuals when the 198 was a common part. There are no prizes although your reward will be part of a colour splash in SMGJ131. *RM*

Freelance Shay Loco

Pictures by José Luis (Pepe) Ferretti



We are indebted to Pepe Ferretti for sending some pictures of the freelance 'Shay' locomotive he built jointly with his friend Andrés Carboné. The model may look familiar to many of us as it was originally featured in CQ108 and that's where the reader is directed for a fuller description; neither of these views were used. At the risk of some duplication, however, it's worth mentioning that Pepe and Andrés didn't restrict themselves to Meccano parts and made some bespoke items. To the right we have the engine's crankshaft receiving a chain drive from a geared motor then flexible distribution to the two twin-axle bogies. *RM*



These Don't Turn Up Very Often

An uncommon 1930s Meccano product

No. 1 and No. 2 Aero Clockwork Motors were introduced by Meccano Ltd during its zenith before WWII changed the world and their product range for ever. Announced in the November 1931 *MM*, they appeared on the dealers' shelves in the following January, the No. 1 priced at 2/- (10p in modern money) and the larger, more powerful No. 2 at 4/6 (22½p). Neither was supplied in an Aeroplane Constructor outfit. The No. 2 featured here was intended to rotate the propeller and the undercarriage wheels simultaneously, their combined resistance making a governor, as fitted to all the Clockwork Motors for the main construction system, unnecessary. This example has retained its box and, from the illustration on page 319 of HCS Vol 6, appears complete apart from an Aero Collar, a ½" fixed Pulley and a small L-shaped object.

Fig. 1

Fig. 2

INSTRUCTIONS

MECCANO AERO CLOCKWORK MOTOR No. 2

The Meccano Aero Clockwork Motor No. 2 is designed to fit in the fuselage of the Meccano Aeroplane models. It provides a high-speed drive for the Propeller of the machine, and at the same time rotates the landing wheels so that the complete model taxies along the floor or table under its own power in a most realistic manner.

The Motor driving assembly is shown in Fig. 1, while Fig. 2 illustrates the Motor mounted in position in the fuselage and coupled to the propeller shaft and landing wheel axle. The drive assembly comprises the Motor Unit 1 which is fitted with a double contrate drive; the propeller shaft 2 fitted with special pinion; the landing wheel axle 3 also fitted with special pinion; the Propeller Control Rod, and the wheeled Tail Unit 12. The Propeller 10 and Collar 6 are contained in the standard Meccano Aeroplane Constructor Outfits.

Fig. 1. Motor complete with driving shafts and Propeller, and wheeled Tail Unit.

A Stop Control Rod is supplied with the Motor and this must be fitted to the Fuselage Top Front, and Fuselage Front before the propeller shaft and Motor are incorporated. The plain end of the Propeller Control Rod is pushed down through the slot in the Fuselage Top Front and continued through the small hole in the Fuselage Front. Next, the Collar 6 is placed on the propeller shaft 2 and locked in position. The Collar 6 should be adjusted so that the special pinion on the end of the shaft meshes with the Contrate Wheel 7 of the Motor, when the Collar 6 rests against the inside of the Fuselage Front. The end of the propeller shaft 2 complete with Collar 6 is then pushed through the upper hole in the Fuselage Front. Next, the end of the propeller shaft 2 is passed through the hole in the bearing lug 8 on the top of the Motor, so that the Pinion on the shaft 2 meshes with the contrate wheel 7.

The Motor is next lowered into position, and at the same time the Undercarriage V Struts, are placed on each side of the fuselage. The Motor and V Struts are held in place by means of 7/32" Bolts passed through the lower holes in the Fuselage Sides. The landing wheel axle 3 is then placed in position as illustrated in Fig. 2. The Propeller 10 may now be placed on the end of the shaft 2 that projects through the Fuselage Front, and locked in position by means of the Grub-screw in its boss. A 1" fast Pulley complete with Rubber Tyre should be placed on each end of the landing wheel axle 3. These Pulleys should be adjusted so that the special pinion on the axle 3 engages with the contrate wheel 9 attached to the driving shaft of the Motor. Care should be taken to see that the shafts 2 and 3 are free to turn in their bearings. A little oil applied to the teeth of the contrates 7 and 9 will improve the running.

The wheeled Tail Unit enables the direction in which the model travels to be altered at will, and it also reduces the friction considerably. The Tail Unit is secured to the tail of the fuselage by means of a ½" Bolt 11. The Bolt is passed through the rear lower holes in the Fuselage Side Rear sections and through the two perforated lugs 5 attached to the Tail Unit. By adjusting the position of the wheel frame 12 on the toothed rack 13 the model may be made to travel in any forward direction.

Fig. 2. Underside view of Meccano model aeroplane, showing method of securing Motor in place. The arrangement of the landing wheel drive, and the fixing of the Tail Unit are also shown clearly.

When the Motor is being wound, the looped end of the Control Rod is moved to the forward end of the slot, so that the plain end of the Control Rod engages with the Propeller and prevents it from rotating. To release the Propeller, the Control is moved to the rear of the slot. The Propeller Control Rod must NOT be pressed forward to stop the propeller when it is revolving.

MECCANO LTD.

BINNS ROAD — OLD SWAN — LIVERPOOL

1/1931/9 *Printed in England*

According to Tony Press's survey of clockwork keys in the Melbourne MCI's April 2012 Newsletter, the key is original - a cheaply-made type 'C'. The Motor itself is nickel-plated with a brass bearing bush on the output shaft's long end which leaves a little play only. This shaft has two identical 1" diameter force-fitted contrates having finer teeth than Meccano Gears; the inner contrate engages an idler pinion.

Fig. 1. Apart from the three missing parts mentioned in the text, this is what you got for your hard-earned 4/6 in the 1930s.

Fig. 2. As the instruction sheet was folded to fit in the box, the few surviving examples will have some creasing and the occasional oil stain. The slip seen in Fig. 1 is attached to the left edge.

Fig. 3. Shown upside-down with the propeller shaft engaging the idler pinion at the bottom.

Fig. 4. The well-made adjustable tail wheel unit; the wheel is machined from brass then plated.

As it has no winding ratchet, governor nor brake, the contrate shaft has to be held during winding and a fully-coiled spring expires in a short burst which may have been construed by the owner as a fault. This would explain the slip pasted to the instruction leaflet that urges (in red type): *IMPORTANT The Aero Motor should NOT BE WOUND UP until it is fitted into a model with the Propeller Control Rod in the "Forward" or "Stop" position, as described in the Instructions*. The same instructions warn against stopping the rotating propeller with the Control Rod (a length of curved and bent wire with a loop at one end, **Fig. 1**) although it probably happened a lot which can't have done much good to a nicely-enamelled thin strip of whizzing tinplate.

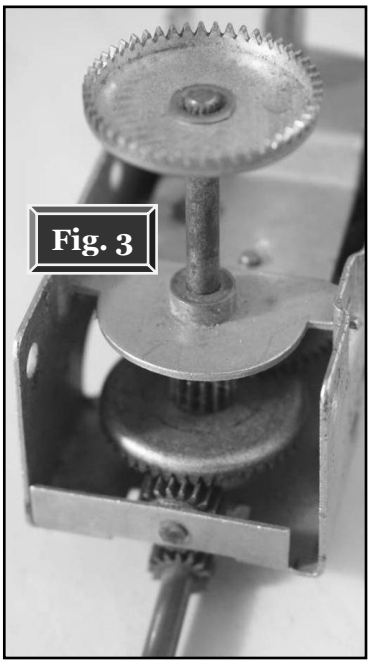


Fig. 3


Fig. 4

Two Axles were supplied, **Fig. 1**. These are standard Meccano diameter and have ready-fitted brass pinions with sixteen teeth (according to a squint). The longer is 3¾" overall and is for the propeller. One end is reduced to about $^{3}/_{32}$" at the pinion end to enter a hole in the Motor frame, the pinion engaging the intermediate idler, **Fig. 3**. The shorter Axle is 3" long and engages the outer contrate to drive the landing wheels.

The best part has to be the nickel-plated tail wheel unit, **Fig. 4** which is very nicely made, even by Meccano's high standards. It is in two parts joined by a rivet, the upper fixing to the model and having a toothed arc, the lower carrying the machined-from-solid ½" diameter wheel and an extension that clicks in the teeth to retain the angle so your Aeroplane Constructor model will run in a circle.

Should you want to know more of these Motors then consult HCS Vol 6, pages 117, 143 & 319. A 'pdf' of a bilingual instruction sheet is at:

www.nzmeccano.com/image-9873.

The LMS proprietor has found that a lot of barren Meccano has to be turned over before catching sight of the glint of gold or in this case, nickel.

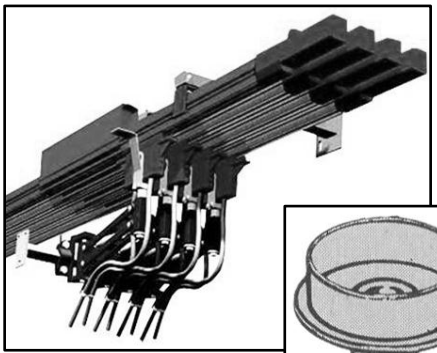
RM

The Illustrated Meccanoman's Dictionary: P

Power factor to Prestress

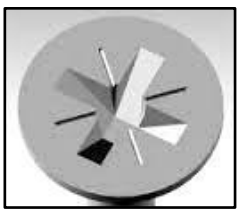
Power factor. Abbr; PF. AC **voltage** and **current** are not synchronised; the angle between them (lag or lead) is the PF. Partially corrected by save-then-release **capacitors**. They're aligned when PF = 1, an impracticable situation. Afflicts **single** and **three-phase**.

Power rails. Bared conductor(s) contacted by sliding **pick-ups** for supplying electrical current onto, say, a **crane** or other travelling machine, right. An alternative method is an **energy chain**.



Power supply. Almost always an electrical appliance plugged into AC **mains** power then reducing voltage with a **transformer**, **rectifying** to **DC** then **regulating**.

Pozidrive. A **screw** head with a crossed recess and identified by marks in the corners, right. The correct screwdriver has a stubbier tip than the now almost obsolete **Phillips** type.



Preload. A deliberately-applied load to create a bend in a part - such as a bridge beam - so that it becomes straightened when in service. **Prestress** is nearly the same.

Preselector. A form of gearbox whereby a ratio is easily engaged under no-load condition well before it is actually required then the load applied later.

President. The non-elected sort-of **committee** member and honorary member of an organisation, usually working as a figurehead.

Press. (1) To force material into a die. **Flanged Wheels** were pressed, left. (2) The actual machine to produce pressings: food cans, car panels etc.

Pressure. A **force**, **load** or **weight** exerted over a specific area. Lots of derived units in **SI** (kN/m²) and **Imperial** (**psi**) of varying usefulness.

Prestress. See **preload.**

Notice of omissions or errors are invited. RM

A Working Regulator for Meccano Railway Locomotives

A bout of warranty-voiding vandalism, the evidence described and pictured by Bob Seaton

Introduction

The following describes a typical application of the 'Robbits' voltage controller rather than the working of it. Care must be taken to follow the installation instructions to the letter and ensure that the proposed motor is capable for the intended application. Motors can vary in the degree of control offered by the voltage controller and this should also be given consideration. The application referred to here is for the starting and speed control of a single 12V geared motor used to drive a Meccano model railway locomotive, (namely *Remembrance*) and is similar to that used for my Meccano Beyer-Garratt which uses two motors then Worm drives. The 1:3 gear ratio to the regulator handle (the control lever) has been selected to give an appropriate movement angle while using the entire potentiometer rotation. One's own application may require a different ratio. The parts required for this installation are all standard Meccano apart from a small rectangular piece of 2.0 mm thick acrylic (e.g. 'Perspex') and a 19t Pinion bored out to Ø 6.0 mm.

Method

1: Preparation. With reference to **Fig. 1**, loosen and remove the M3.0 screw and hexagon nut which holds the transistor to the aluminium plate (which also acts as a heat sink) and retain it for reassembly. Loosen and remove the self-tapping screw which holds the connector block to the mounting plate and again retain it. Treat the controller with great care at this stage as the leads are now at their most vulnerable and can be easily damaged. Loosen and remove the large hexagon nut which holds the potentiometer and retain. Exercising more care, remove the components from the plate, **Fig. 2**.

Remove and discard the two nylon M4 screws and nuts. Turn the plate over and mark out as shown in **Fig. 3**, the centre of the large hole being the datum from which to work. Drill two Ø 4.0 mm holes, one at ½" to the left of the vertical centreline of the large hole and a second 2½" to the right of the first. Drill two more Ø 4.0 mm holes on the same vertical centrelines as the first two holes 1" below the horizontal centreline of the first two holes then

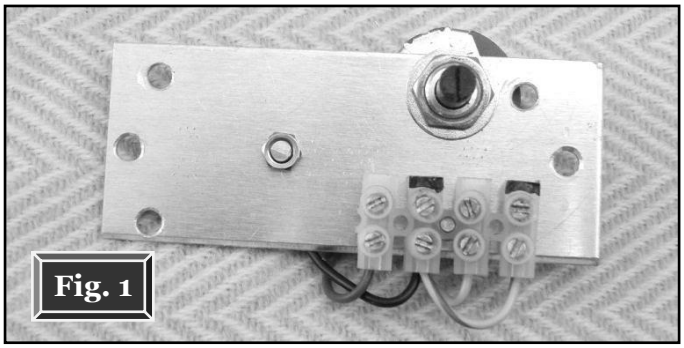


Fig. 1

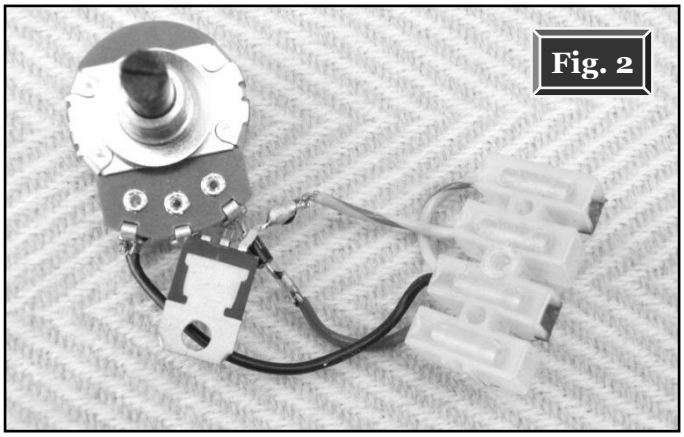


Fig. 2

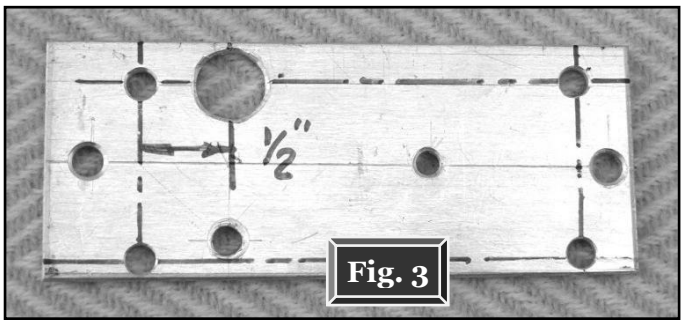


Fig. 3

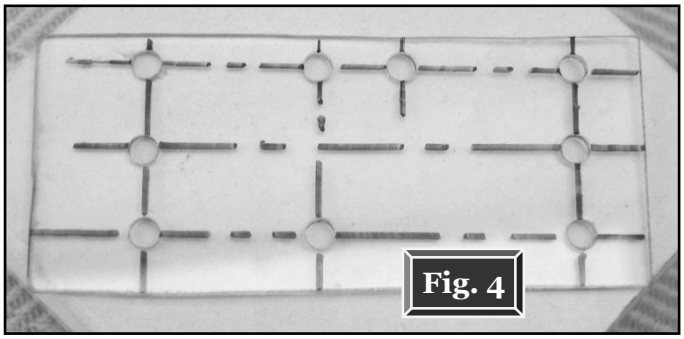


Fig. 4

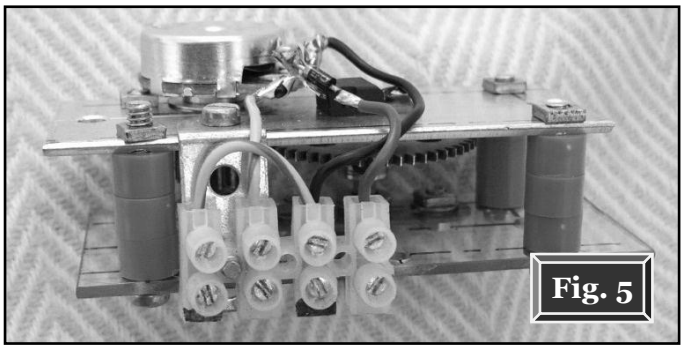


Fig. 5

lightly de-burr both sides of each hole. Identify the hole used to retain the connector and open this out also to Ø 4.0 mm and de-burr both sides. Note that a 3" × 1½" Flat Plate makes a handy template for marking out these holes.

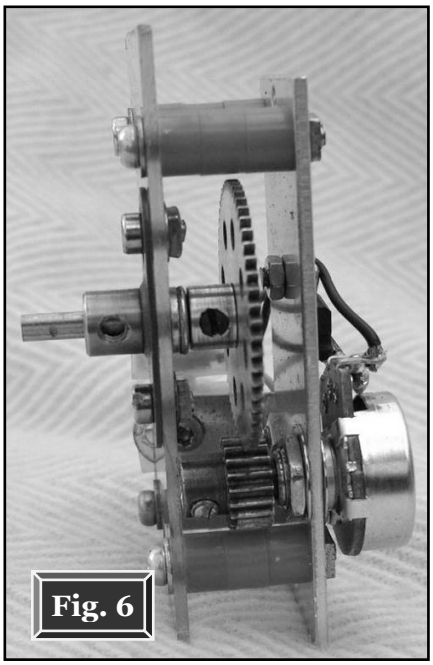


Fig. 6

For the intermediate mounting plate, I used 2.0 mm acrylic but any insulating material (such as 'Tufnol') could be used. Cut it to match the aluminium plate and transfer the positions of the four Ø 4.0 mm holes to the new plate. Note: take care when cutting acrylic with a junior hacksaw as it can crack if the saw snags; when drilling, use a slow speed with gentle feed, especially when the drill is about to break through. Always support it with a small piece of wood. In industry, drills for acrylic are ground to a 60° angle (standard drills are 120°). [From Russ: the key is to preventing 'grab' is to grind the flute off to 90° at the tip. If you are adept at re-sharpening drills, this is easy to do.] With reference to **Fig. 4**, mark out and drill three more Ø 4.0 mm holes (all centre distances are ½") and de-burr both sides.

2: Assembly. The input shaft (a 1" Tri-flat Axle) from the operating (regulator) handle is supported in a Double Arm Crank (Grub removed) which is bolted to the acrylic plate using standard Meccano Nuts & Bolts - it is highly recommended that thin washers are used under the nuts. With reference to **Fig. 4**, the Double Arm Crank is bolted through the two upper right-hand holes with the boss and Bolt heads facing towards you. Pass a 4.0 mm drill through the Double Arm Crank boss and the acrylic to provide a hole for the input shaft. With care, replace the potentiometer in its original position and tighten the nut securely. Reattach the transistor in its original position with the original nut & screw. Using a Meccano Nut & Bolt, attach a 1" × ½" Angle Bracket to the plate using the opened-out hole previously used for attaching the connector block, **Fig. 5**. Using the original self-tapping screw, attach the connector block, **Fig. 5** again, through the Bracket's slotted hole. Attach the bored-out 19t Pinion to the potentiometer spindle and secure with two Grubs. To ensure the Pinion's isolation, it must not touch the potentiometer's threaded portion; **Fig. 6**.

Pass the input shaft through the boss of the Double Arm Crank and on the opposite side of the acrylic plate add two Meccano Washers and a 57t Gear secured by two Grubs, **Fig. 6**. For convenience, the shaft can be temporarily retained by a Collar. The acrylic and aluminium plate assemblies can now be bolted together using 1⅛" Bolts and spaced apart by three plastic Spacers per bolt (**Fig. 6** - I used orange Spacers for ease of identification) and with washers against the acrylic. The Gear should mesh nicely with the Pinion and both should rotate freely, the only resistance to movement being that caused by the potentiometer itself, **Fig. 7**. Check all bolts for tightness and moving parts for correct operation. Ensure that parts attached to the aluminium plate are not allowed to contact the input shaft or Gear as the aluminium plate must be insulated from them and, indeed, the model into which it is being built. Perform a bench test using a suitable motor to ensure correct operation of the whole assembly before building it into your model.

3: Installation. The temporary Collar should be removed and the input shaft passed through a suitable plate (the firebox back-plate in the case of my loco). Additional plastic Spacers and ½" Bolts are used to mount it, ensuring that no Bolt shanks, Nuts etc come into contact with the aluminium plate. Care should also be taken not to totally enclose the unit as heat is given off under certain conditions and will need to dissipate. On my locos, Flat Plates are used for mounting and closing off the space above so that air can move freely around it. Should it be required, a normally-closed microswitch could be added to the input supply which would ensure total isolation in the 'off' position and be operated from the input shaft.

If this controller is being built into a loco having a reversing feature, the switch must be wired in after the controller as it will only pass current in one direction.

Bob Seaton

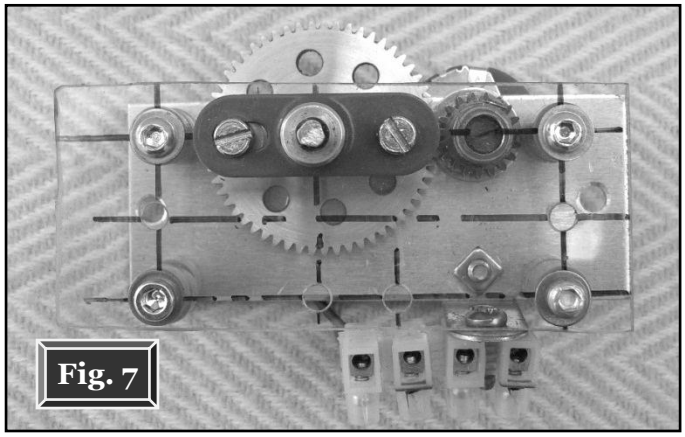
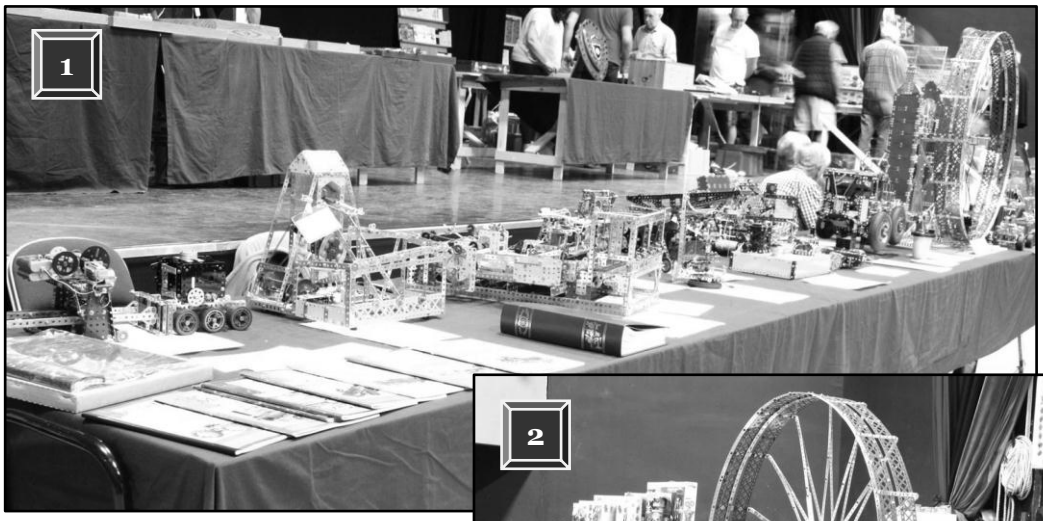


Fig. 7

Skegex Retrospective

23rd to 25th June 2017
Text: Bob Seaton, Russ Carr and Rob Mitchell
Pictures: Rob Mitchell and Ken Ratcliff



1 & 2. The lengthy SMG plot. From left to right, models grew in stature from your Ed's collection of vertically-challenged constructions to Stefan's 'hamster wheel' then John's admired Newcomen Engine. (RM)

Occurring a week earlier than normal, Meccano fanatics from all over the world (and parts of Yorkshire) converged on the Lincolnshire coast for the annual three-day extravaganza at the Embassy Theatre in Sunny Skeg. With the North Midlands Meccano Guild's Marion Cotterill, Geoff Brown (Chief Steward), John Lacey (Steward) and Tim Roylance (t'other Steward) firmly in charge, nothing untoward appeared to happen such as an upset over territory being squeezed or squabbling for the nicest-coloured raffle tickets.

Our new banner was lashed to a nearby balcony handrail as the SMG took its now customary site on a long, wide table run in front of the stage. That's where John Wilson (on his Skegex debut as a builder), Stefan Tokarski, John Ozyer-Key, Russ Carr, Stephen Pashley and your Ed laid out their metallic wares. We were a touch cramped, an affliction that affected others elsewhere - the MSoS (Scotland) contingent in particular - so there was no reason to simper at a Steward and cheek-by-jowl was a better scenario than vacant tables. We of the SMG welcomed two new members, took several voluntarily-proffered renewals, sold some back issues and delivered some machining work then collected another job.

As the irreplaceable Michael Denny is no longer with us, your Ed again found himself sweet-talked/threatened into providing an on-the-hoof script for a certain other Sheffield-based Meccano publication. When this first occurred in 2015, it

3. Greg Clarke's harbour complex of a mobile grab crane loading dried foodstuff into the hopper-conveyor thence to a minimalist ship's hold from where the crane completed the circuit. In the foreground lies the cover temporarily removed from the crane's machinery house and in the background, is that our new SMG banner looking resplendent above Robin Schoolar? It is! (RM)

4. Tony Seed has added a No. 5 Outfit Motor Lorry to his vintage version of Greg's work. (KR)

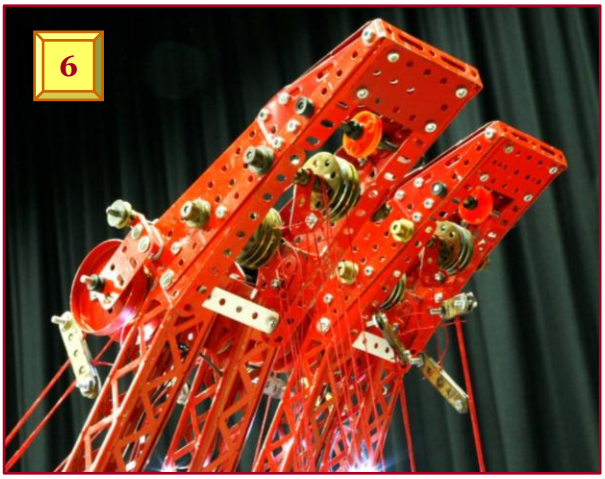
5. From Canada was this A4 made to '0' gauge by **Don Morton**. Plastic Plates are perfect for the blue livery and no-one will shed a tear at cutting to gain the sloping front end. (RM)

6. Jib head detail on **Ivor Ellard's** floating crane; Ivor doesn't wholly adhere to Meccano! (RM)

7. This one seemed to defeat most attempts at a good picture. **Andy Knox's** expansive ball-rolling complex was pictured when stationary from the balcony and you won't see many of the traditional Meccano (and Metallus) ball-handling machinery. (KR)


3
The Sheffield Meccano Guild


4
MECCANO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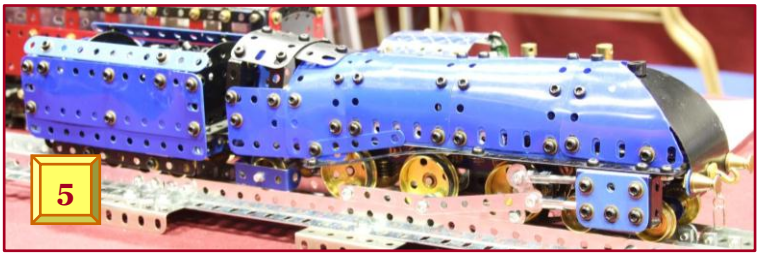
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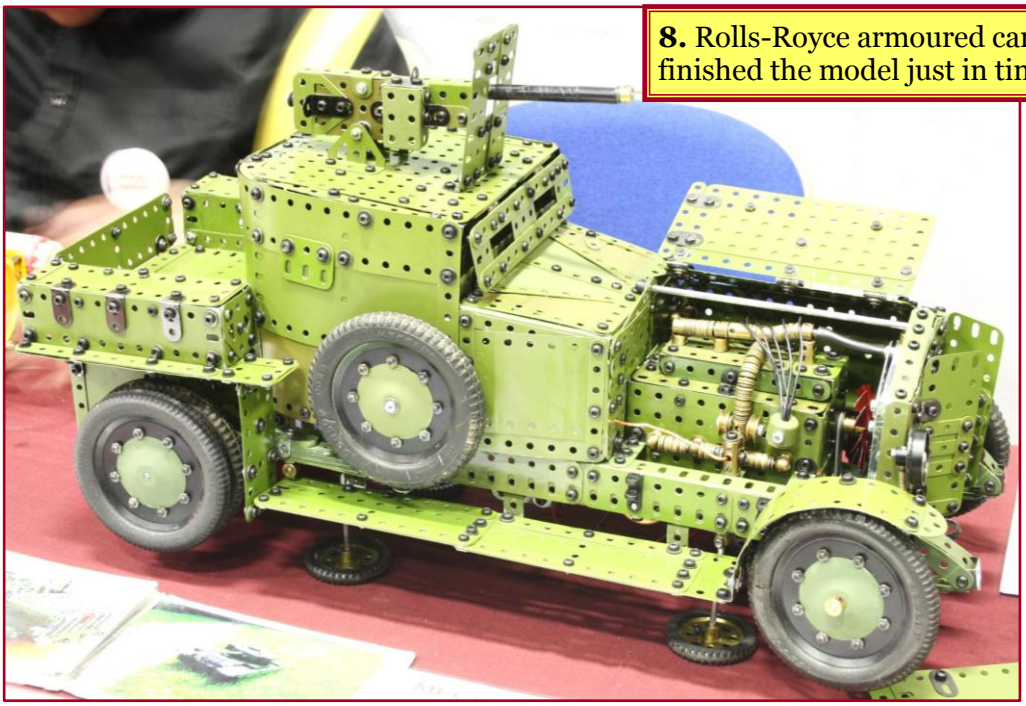
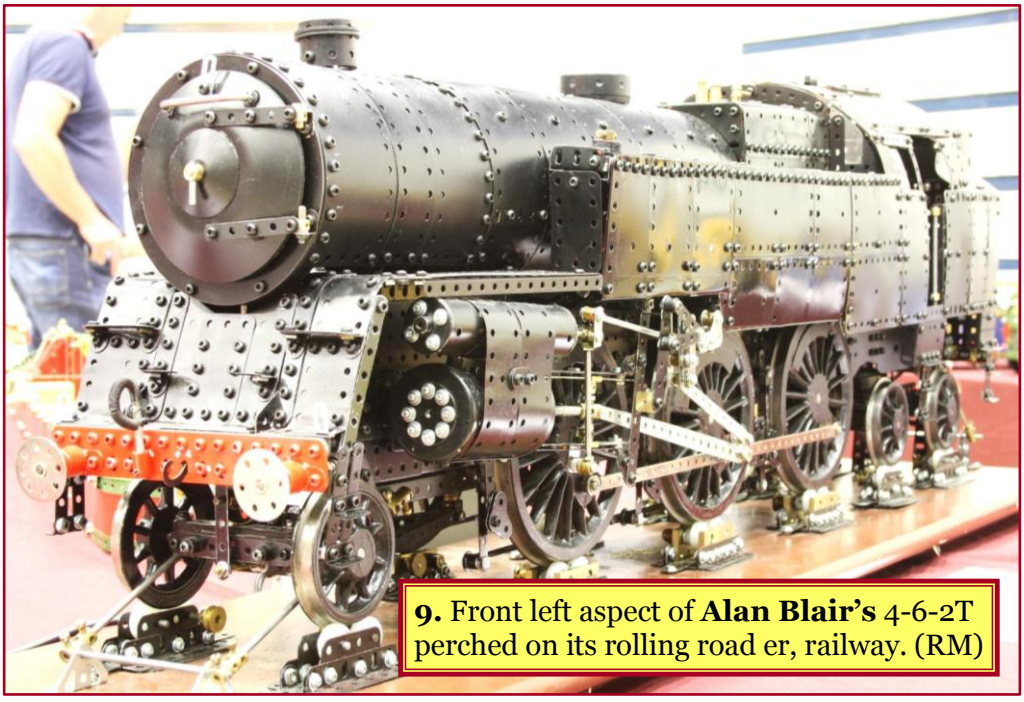


8. Rolls-Royce armoured car by **Cath Claydon** who finished the model just in time for Skegex. (RM)

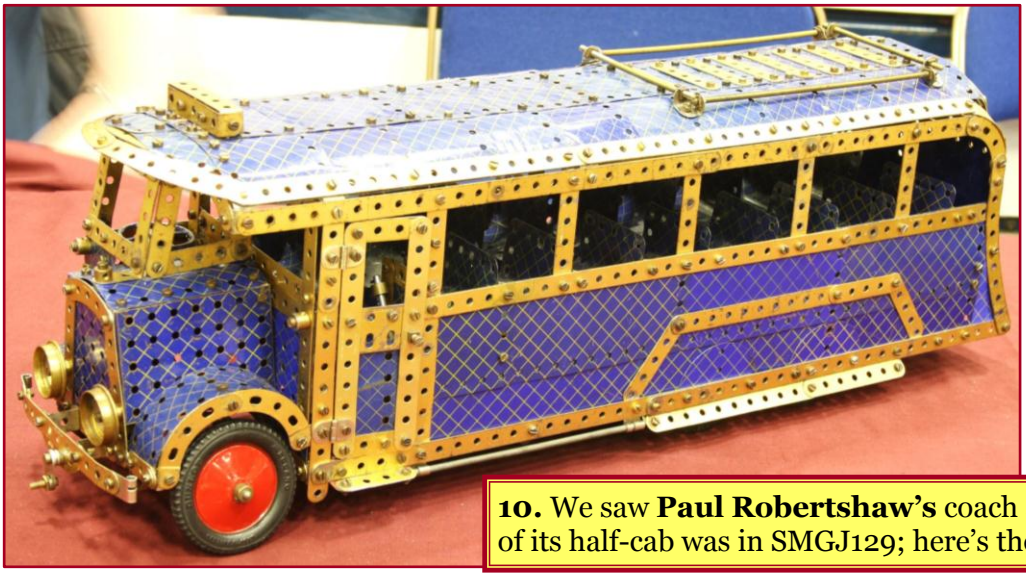
prompted a unique and ultimately effective approach to Skegex coverage, since maintained. Russ Carr and Bob Seaton were willing volunteers to select three or four (or five!) models that drew their attention; whether these were orthodox or offbeat, a contender for the Issigonis Shield or otherwise was immaterial and their choice was not restricted to SMG members. Your Ed did likewise and, aided by Ken Ratcliff's pictures, it is our joint efforts which are presented here with a smattering of other striking models along the way. Mentioning everybody would be impossible so we won't have a crack at that feat and we'll begin with Bob Seaton.



9. Front left aspect of **Alan Blair's** 4-6-2T perched on its rolling road er, railway. (RM)

1: Bob's choice

A few words on my three chosen models; a fourth did not transpire due to my being required to gossip about the trio of locomotives I had on show!



10. We saw **Paul Robertshaw's** coach at Laughton and a photo of its half-cab was in SMGJ129; here's the whole model. (RM)

WWI armoured car Built by Cath Claydon

Modelled in standard Meccano Army green by Cath was an early armoured car complete with machine gun. Having taken eight months to build, the model was completed in early June 2017 and featured a working engine, cooling fan and

four-speed & reverse gearbox. Cath confided that this was her first attempt at using gears in one of her models. The upper section was removable to reveal a unique feature - an internal engine starting handle designed to protect the crew from enemy fire whilst attempting to start the car.

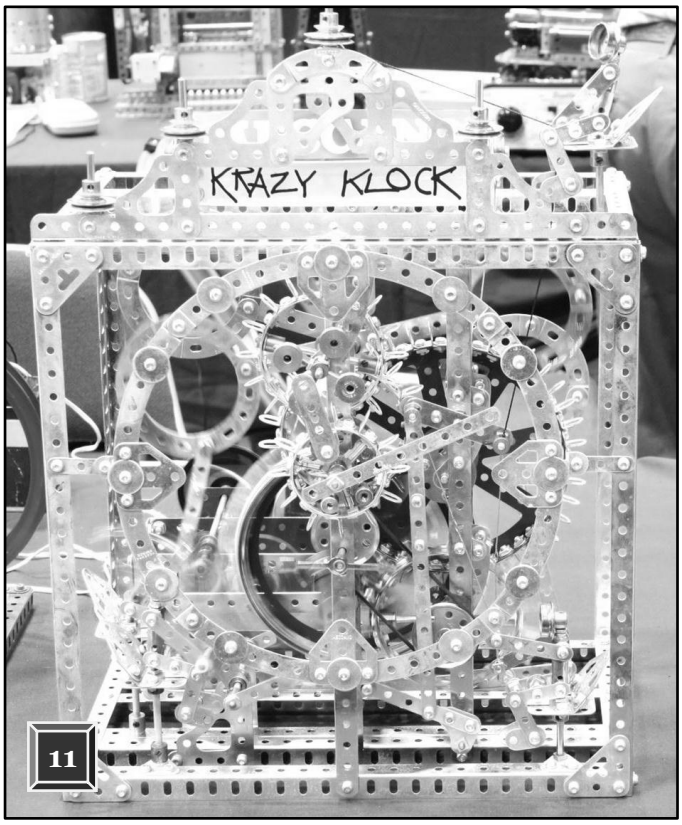
Used in both wars, the prototype was based on the Rolls-Royce 'Silver Ghost' with a crew of two or three. Its straight six-cylinder engine (over seven litres!) delivered 65 bhp at 2250 rpm, a maximum speed of 60 mph (97 km/h) and at a paltry 12 mpg (4.2 km/l), had a range of 216 miles (290 km). The main fuel tank of eighteen-gallon (82l) capacity was supplemented by a four-gallon (18l) reserve. A Vickers 0.303" Mk1 water-cooled machine gun could deliver 500 rounds per minute with a range of 2900 yards (2.65 km). Ammunition storage was 6000 rounds.

BR 4-6-2T *Black Beauty*
Built by Alan Blair

Alan presented his nearing-completion model of a 1950s British Railways class 4 2-6-4 tank locomotive. The driving wheels were of model engineering origin, essential for running on 5" gauge track (which is Alan's intention) and added a high degree of realism to the twelfth-scale model which also made extensive use of rescued and refurbished parts. All were finished in black livery to reflect the original. Flexible Plates were double-skinned to help mask the holes. The motion and valve gear were accurately represented and the model had fully working suspension and articulated leading & trailing axles. Brakes on the driving wheels were operational as were the buffers and even the smokebox door opened. The model was mounted on rollers to allow the driving and guiding wheel rotation to be demonstrated.

1930s coach
Built by Paul Robertshaw

Paul displayed a well-detailed model of a six-wheel coach built in his favoured blue & gold colour scheme. The model accurately represented the prewar vehicle upon which it is based and included



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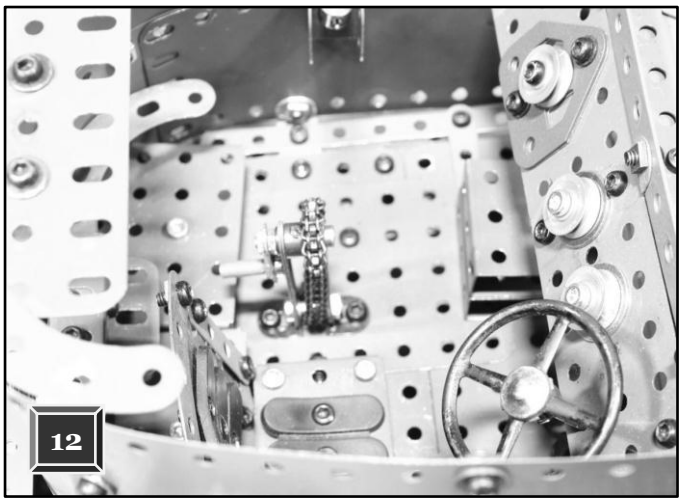

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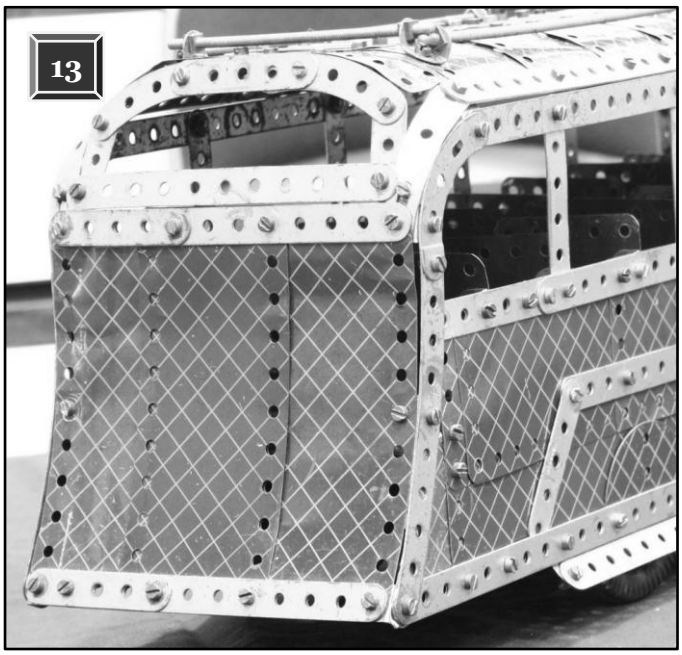


13

11. Having no proper gears, Keith Cameron's Krazy Klock certainly deserved its name! This one was by **Bob Palmer**. (RM)

12. With the cab upper and 0.303" machine gun lifted off, the inside starting handle inside **Cath's** armoured car is seen. (RM)

13. Even the rear end of **Paul's** period clockwork coach looks good. (RM)

14. Chris Shute's mind-boggling Perpetual Poetry Producer. Chris must have purposefully left open the sides to thoroughly baffle even the Meccano-savvy onlooker. The poem displayed read *Long lost Narrow Strip we like it a lot, often slender-hipped quickens the heart-rate, certainly treasured as likely as not, it wants to stand next to a Flanged Plate*. The contraption did give its builder some mild cause for concern, the sequencing not working entirely as intended hence the top window showing a Tension Spring (not a Narrow Strip!) although there's definitely a twirling Flanged Plate at the bottom. The Elektrikit Dial Cards were for poetic indication purposes only… (RM)

15. This is the PPP's top carousel with sixteen positions around a Hub Disc. Given the self-evident complexity, we'll not tease Chris too much about the occasional mechanical mishap. (RM)

enclosed tandem rear wheels, passenger seats, roof rack and luggage stowage area. Having working steering, the model was powered by a Clockwork Motor driving the leading rear axle and was based on a 1930s No. 9 Outfit Manual model.

Bob Seaton

Thanks Bob! Given your track (ahem) record, taking a shine to Alan's loco was barely a surprise and Cath is in danger of becoming one of your regular Skegex 'victims'; our late pal John MacDonald would have approved. Cath said that some of his Meccano parts were used in her model.

2: Russ's choice

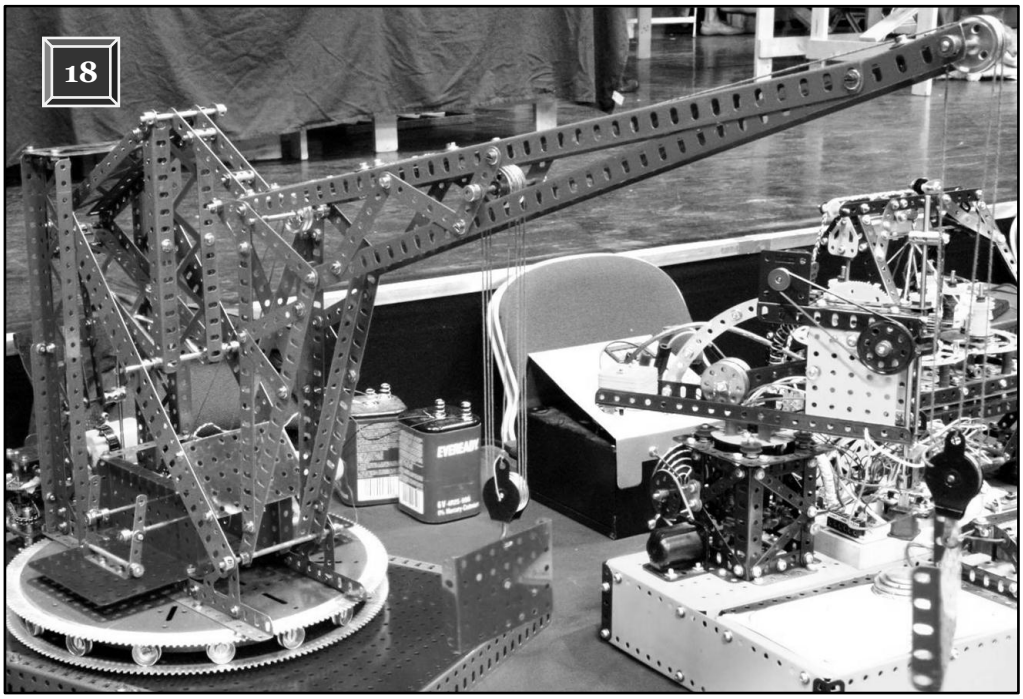
I had actually selected six models then reduced to five on finding that one of them had already been filched by a rival reporter!

Perpetual Poetry Producer
Built by Chris Shute

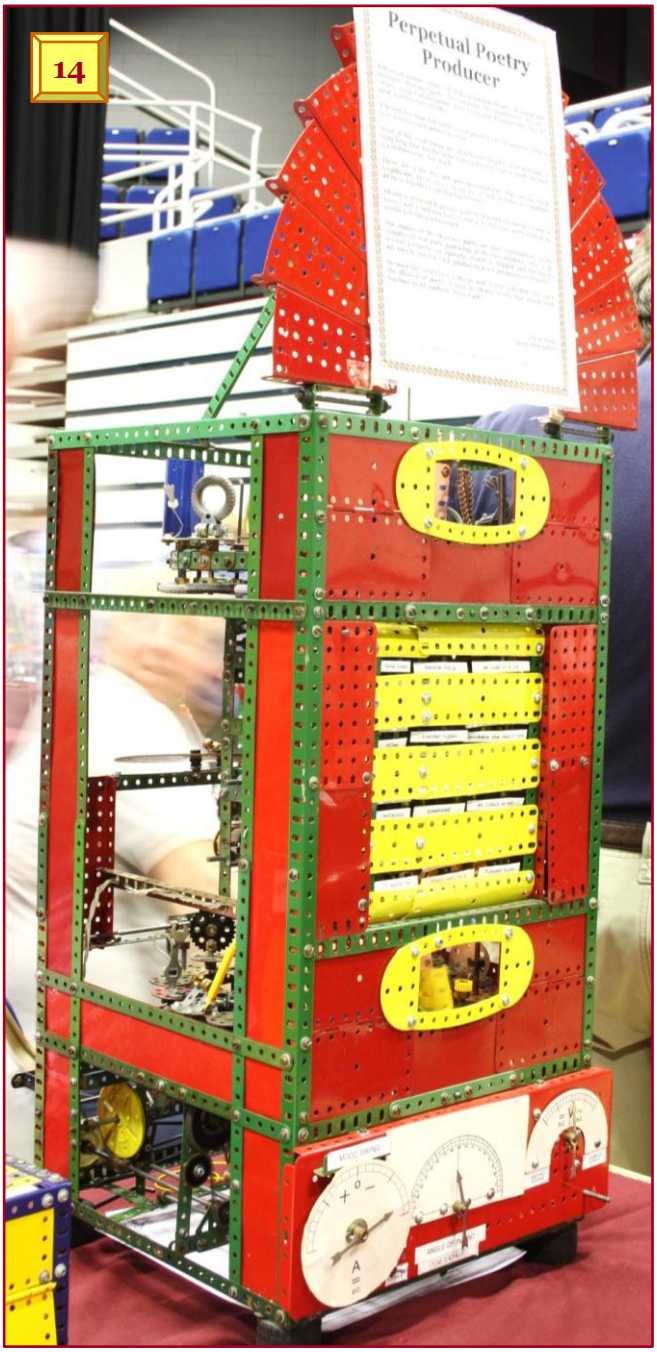
My favourite had to be Chris's Perpetual Poetry Producer. It was a tall machine, a carousel at the top having sixteen Meccano components seen one at a time through a viewing window. A similar carousel at the bottom had nineteen Meccano parts and the carousels were synchronised to the relevant words in the poem. Every 30 seconds, the carousels brought another part into view, the verse changed and a bell chimed. As the word tracks were of different lengths and mostly prime numbers, the possible combinations are huge and astonishingly, the poems make some sort of sense - if you can wait 3.2 million years you will see the poem repeat! The word strings were glued to plastic Caterpillar Track links. The carousels carried Bush Wheels on short vertical Rods, the displayed parts mounted on the Wheels which revolved via a 1" Pulley & Tyre on the Rod's lower end. These doubled as a detent, a Formed Slotted Strip sprung between adjacent Tyres. A sample poem: *Unearthed Centre Fork may look rather worn, sometimes hardly used set to surprise you, costly though mighty old Frank Hornby's spawn, how can it enchant a mere Grub Screw*.

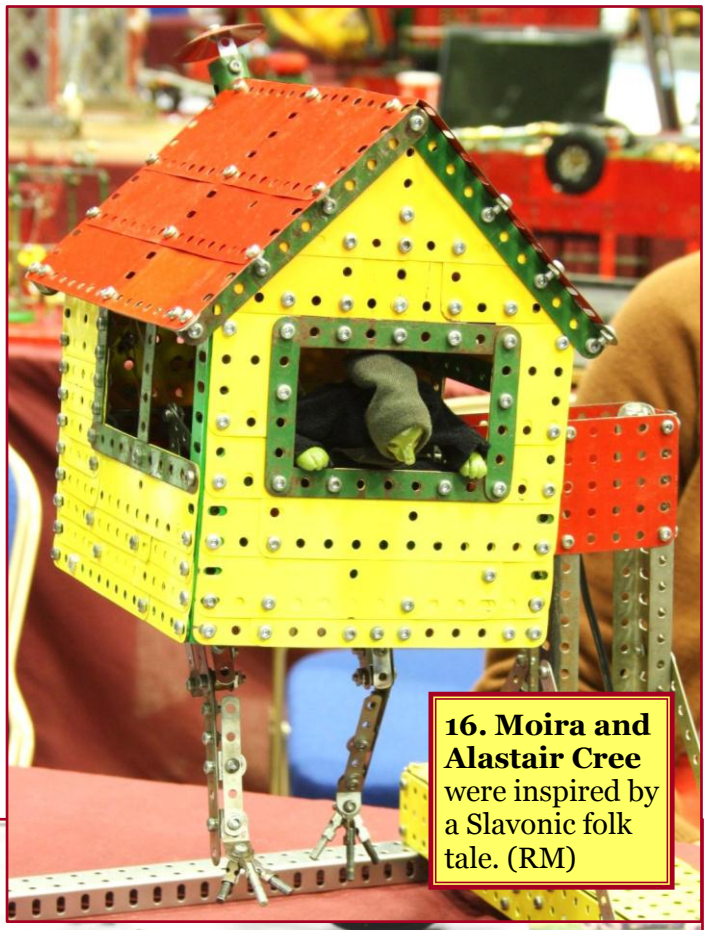
'Chicken shed'
Built by Moira and Alastair Cree

Moira and Alistair can always be relied upon to produce an amusing model and their Hut on Chicken's Legs shack did not disappoint. From Mussorgsky's *Pictures at an Exhibition* piano suite, based on a Slavonic folk tale of the witch Baba Yaga who lived in a forest hut that walks on fowl's legs. The leg mechanism was adapted from Stefan Tokarski's 'Roadrunner', itself from the Theo Jansen linkage.

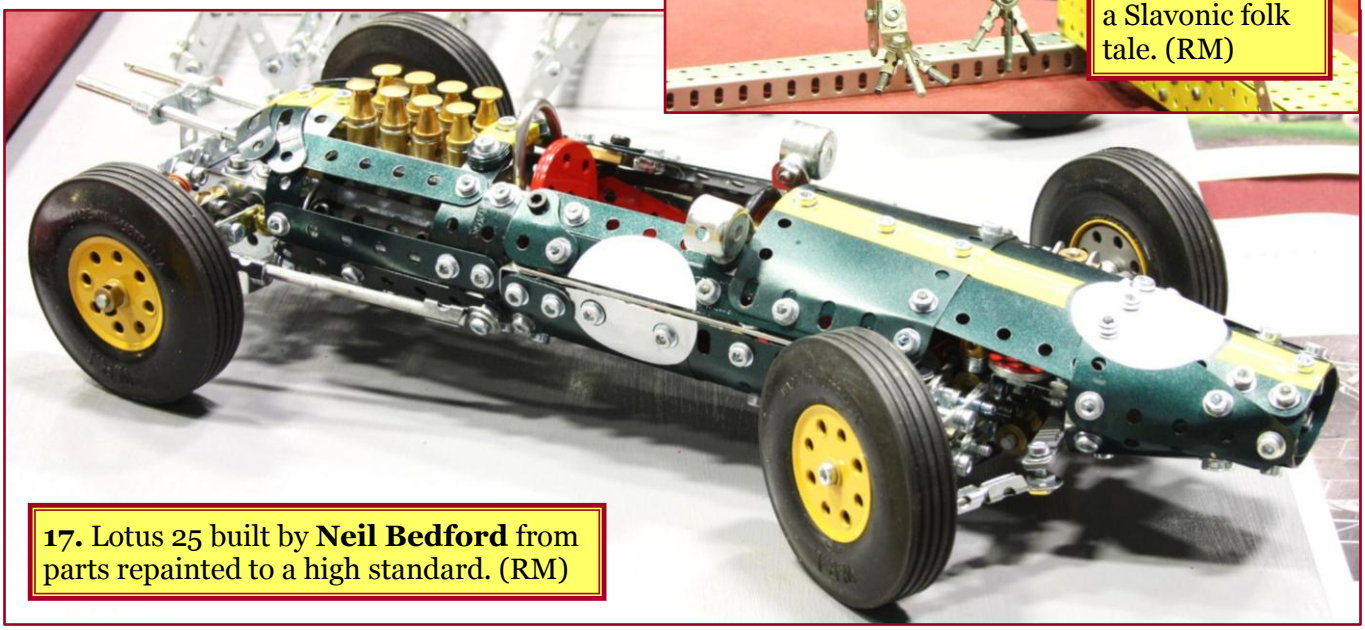


18. This red & green SML Pontoon Crane by **Stephen Pashley** was shoe-horned into the SMG area between Russ's *Tower of Hanoi* robot (right) and your Ed's also-SML Electric Mobile Crane. (KR)





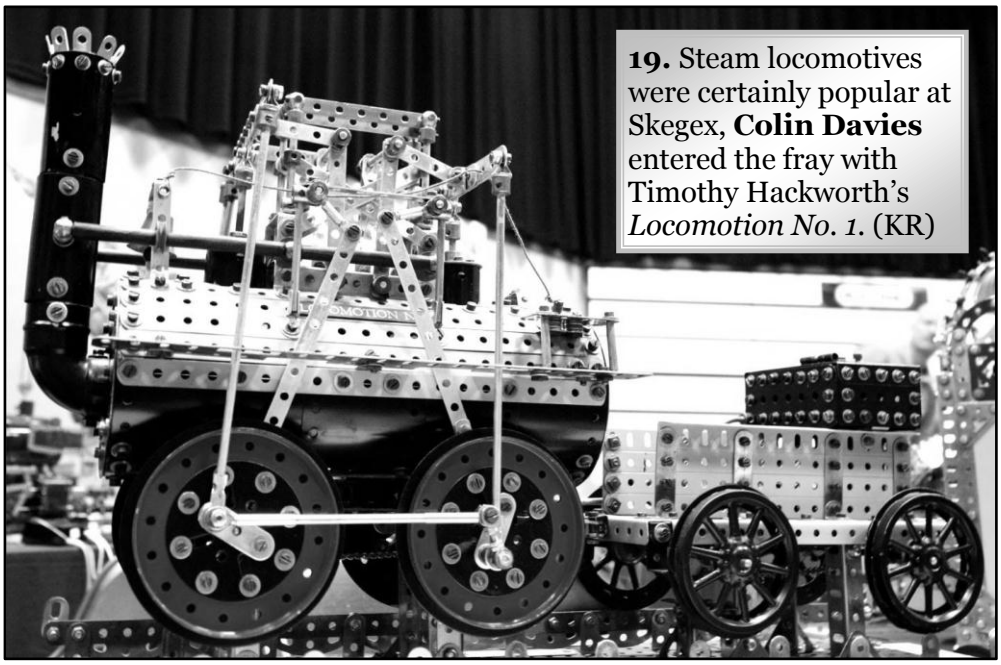
16. Moira and Alastair Cree were inspired by a Slavonic folk tale. (RM)



17. Lotus 25 built by **Neil Bedford** from parts repainted to a high standard. (RM)

Lotus 25 F1 racer
Built by Neil Bedford

Neil had built a very attractive Lotus 25 Formula One car in zinc and repainted British Racing Green. The monocoque body shell separates into three parts as does the real thing, which allowed the model's innards to be revealed. The use of Narrow Strips and Rod & Strip Connectors had enabled the suspension to be detailed without looking too bulky while Buffers made perfect air intakes. WRI ribbed tyres and a recessed wheel construction allowed the front kingpins and rear axle ends to be kept tight to the wheels.



19. Steam locomotives were certainly popular at Skegex, **Colin Davies** entered the fray with Timothy Hackworth's *Locomotion No. 1.* (KR)

Marion mining shovel
Built by Pete Evans

Pete had built a Marion 204M rope shovel in red & green. Movements included track drive, slewing, crowd, boom, bucket tilt and bucket opening. The prototype's heavy-duty construction was well captured. The original operated in Australia and Pete had communicated with the Engineer and Operator to obtain valuable information.

Colmar fixed scrap processor
Built by Norman Brown

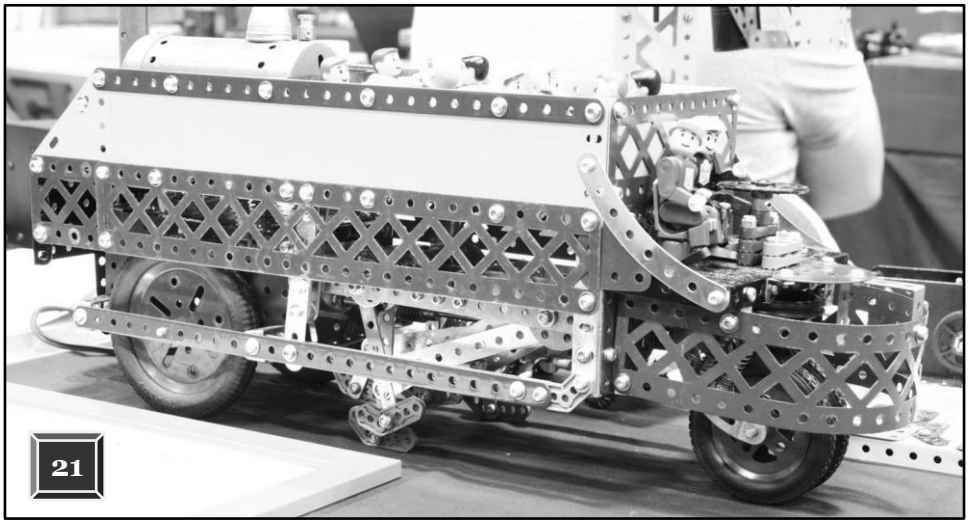
Grab cranes were very popular this year and Norman had a Colmar F32 fixed scrap processor of modest size that performed well. It was mounted on a fixed base with a turntable constructed of Ashok's 6" rings for the outer and 4" Circular Plates for the inner separated by ⅜" Delrin balls (kind to paint). Both sides of the boom foot were bolted to 95t Gears and the lifting motor was geared to these. Counterbalancing was by a bank of twelve Tension Springs. The jib elbow was moved by a heavy-duty screwed rod while the grab was operated by a Screwed Rod via Bowden Cables from the Multi Models fifteen-model Set.

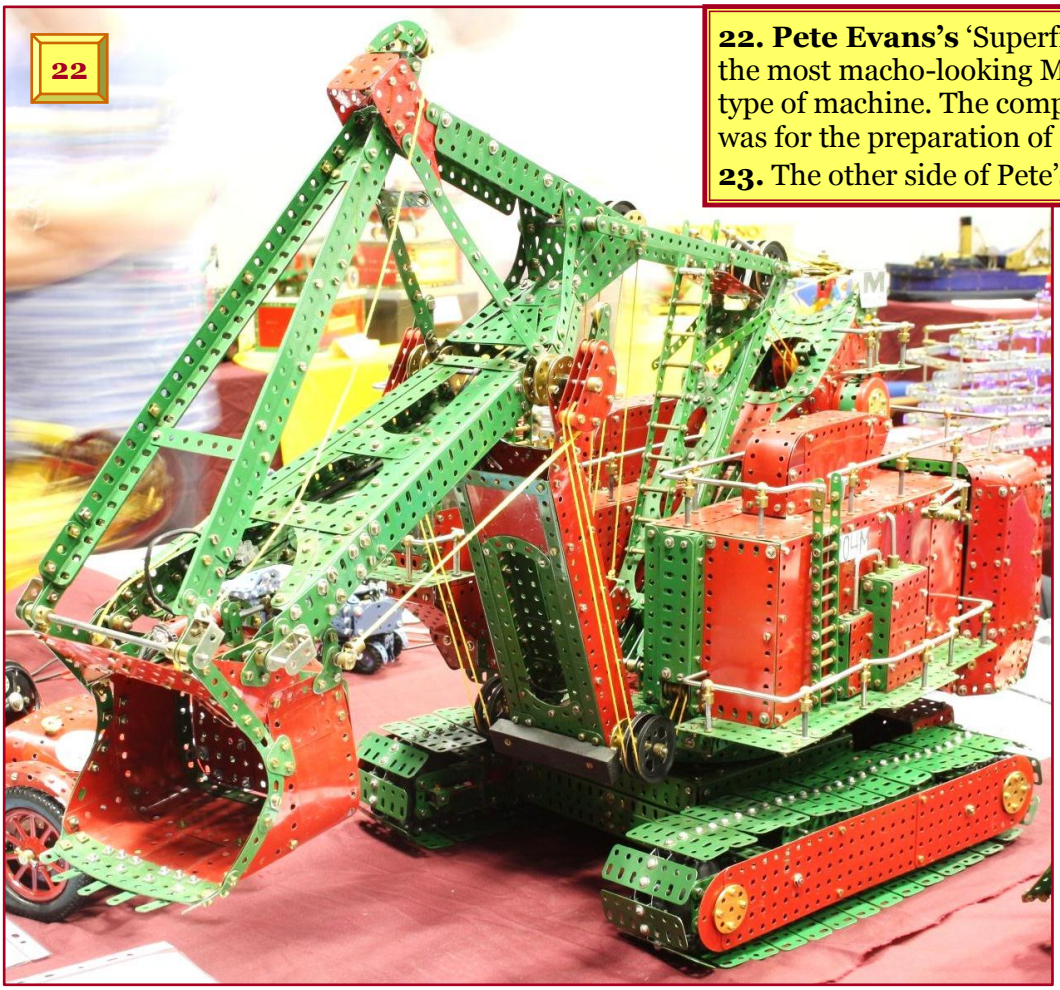
Russ Carr

Much obliged Russ and in the Perpetual Poetry Producer, you certainly picked a tough nut. When given the chance to select something simpler, he gamely battled on although he didn't seem very keen to wait 3.2×10^6 years to witness the cycle repeating itself; some have no patience.

20. A closer look at the polyp grab dangled from Norman's crane. (RM)

21. Gordon's steam carriage built and working by **Henri Goovaerts**. It was impossible not to think of Ken Ashton's model (page 30) with which it makes an interesting comparison. (RM)





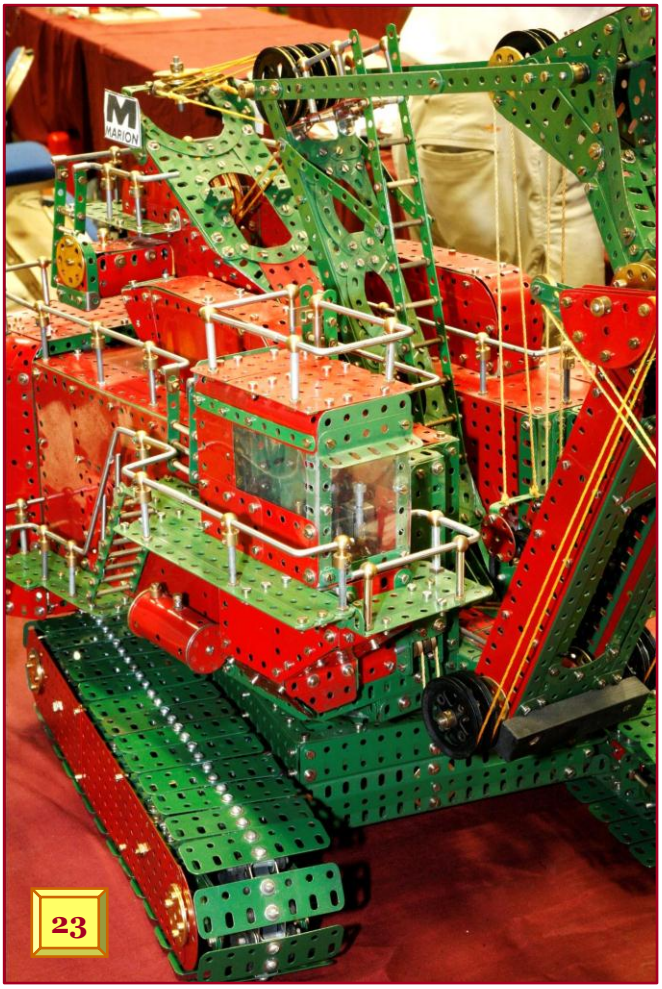
22. Pete Evans's 'Superfront' has to be one of the most macho-looking Meccano models of this type of machine. The complex bucket linkage was for the preparation of a flat surface. (RM)
23. The other side of Pete's model. (KR)

3: Rob's choice

Playing second fiddle to Messrs Seaton and Carr could be a re-run of the SMG's April games but as Skegex 2017 was a corker, there were plenty of other eye-catching models to pick from.

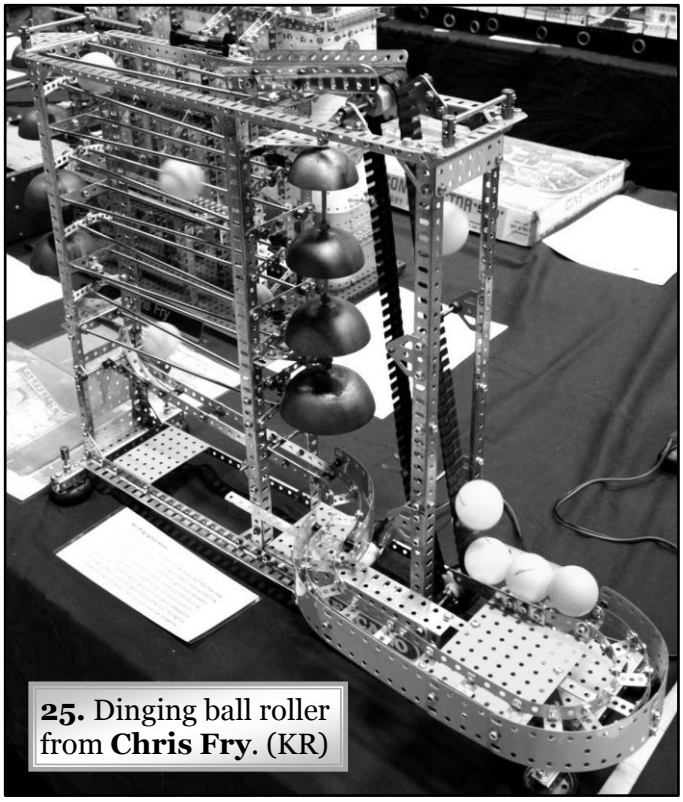
Sobemai balance crane Built by Richard Payn OBE*

After five years of sporadic building then a pre-Skegex frenzy, Richard presented by far the tallest (and reddest?) model. It was also one of three machines equipped



24. Colmar F32 scrapyard crane by **Norman Brown**. (RM)

with a polyp-type grab at the end of a long, articulated arm; Brian Chaffer's smaller version was in SMGJ120. Richard's model rose from three caterpillar track frames, two steerable, to a hefty portal with a substantial beam then further aloft by a cylindrical tower, split horizontally by the slew bearing, to the crane itself. At the crane rear was a large moving counterweight for the primary boom and above was the parallelogram link to angle a secondary boom descending to the grab. Anyone who has tried the tricky business of replicating hydraulic rams in Meccano will know that there are three preferred methods (rack, screw jack, 'cordraulic') and Richard had used all of them. The entire boom used the 'linear actuator' with Rack Strips taking the considerable load and, such was the inertia then momentum - both can readily accrue in a big model to overwhelm Meccano drives - your admirer let pass the sporadic yet feared sound of distressed Gears. A Screwed Rod driven by a Powerdrive near the boom tip worked the grab where some lightweight plastic parts formed the 'claws'. An often overlooked detail on big cranes, a moveable driver's cabin to allow a good view, used a Cord & Pulley system. Far too much Meccano for my liking! By their nature, balance cranes do not have a large load rating which is a trade-off against speed and regularity of working; with that in mind, Richard's model seemed happy where the SWL was a rubber ball or a safe One Boiled Egg*.



25. Dinging ball roller from **Chris Fry**. (KR)

Art deco cinema façade
Built by Chris Fry

It has been stated before in these pages that in an SMG theme, we know who to watch; for SELMEC's parallel, Chris Fry has to be the one. His model was a result of their Secretary's Challenge which for 2017 was 'Architectural Carbuncles'. The selected building, the 1938 art deco Odeon at Redhill, Surrey, ceased working as a cinema in 1975 then endured the ignominy of becoming a nightclub under various names before closure in 2011 then demolition in 2013 of everything except the listed façade. Shorn of its structural integrity, a final frontage affront arrived in the form of a huge scaffold to keep the edifice upright should it be hit by more than a breeze; it's now a local eyesore awaiting redevelopment. Chris built the façade from white Plastic Plates then partially hid it behind the Strip and Angle Girder framework.

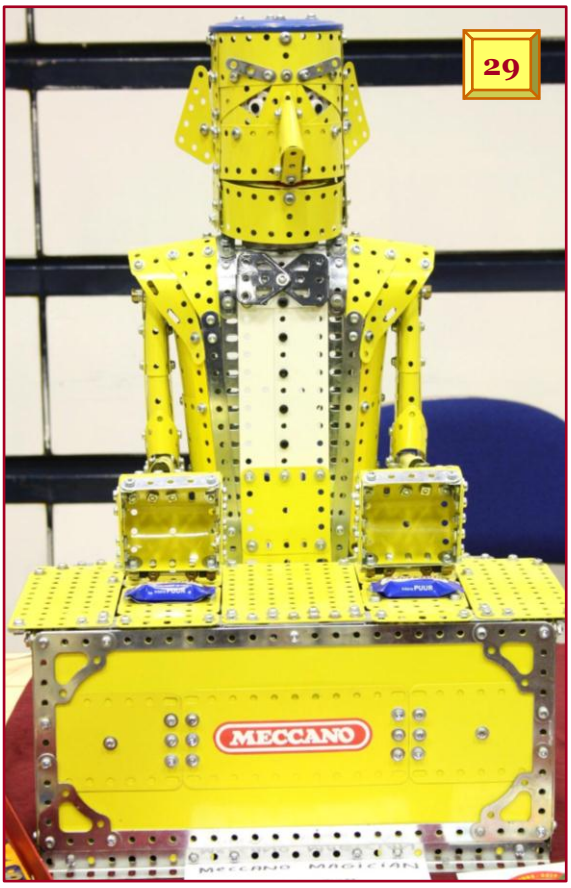
Alongside the frontage model, Chris had a precision ball roller where a ball, dropping from one chute to the next along with a reversal, struck a plunger working a hammer against a bell. The resultant gentle continuous tinkling formed quite an aural backdrop for Skegex 2017.

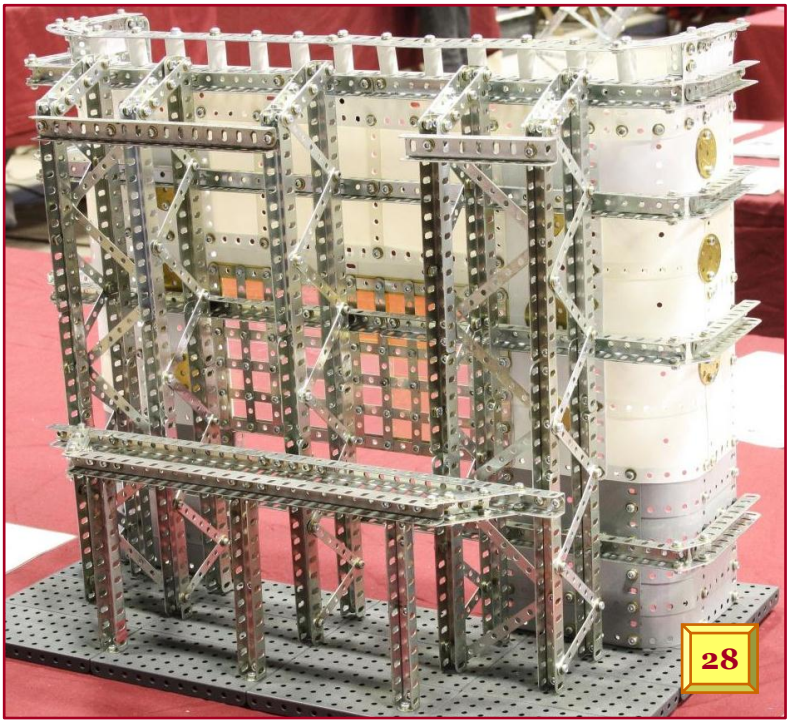
Miniature magician
Built by Robert Haar

Clearly inspired by the somewhat cumbersome and delicate Servetti masterpiece, Robert had built a much-reduced variety with all operations driven from a single motor through a series of gears and linkages. The two main simplifications were to replace the arm lift-swing by a plain rotation which was allowed by hinging the two covers to the table top along their rear edge and replacing the central eight-legged carousel with two 2½" 'cubes' which sank into the base, rotated a quarter turn then rose before being revealed again. The magic was four permutations of none, one or two little Dutch chocolate bars fixed to the cube facets.

Ladies stiletto shoes
Built by Becki Picking

We'll go straight to Becki's description! *Who needs Jimmy Choos when you can have Meccano shoes? My stylish stilettos are 100% Meccano and were built to show the guys that Meccano is not just about cranes, clocks and steam engines! My designer heels are soon to be embracing the hallowed catwalks of Skegness, Henley and Ironbridge. Modelled to size 7 with an open heel configuration, these sleek stilettos are a new design for summer and a masterclass in innovative styling and Flexible Plate manipulation!* What else could be added? Well, as fancy footwear for fragile female feet goes, these were extra-brutal on account of those Nuts & Bolts





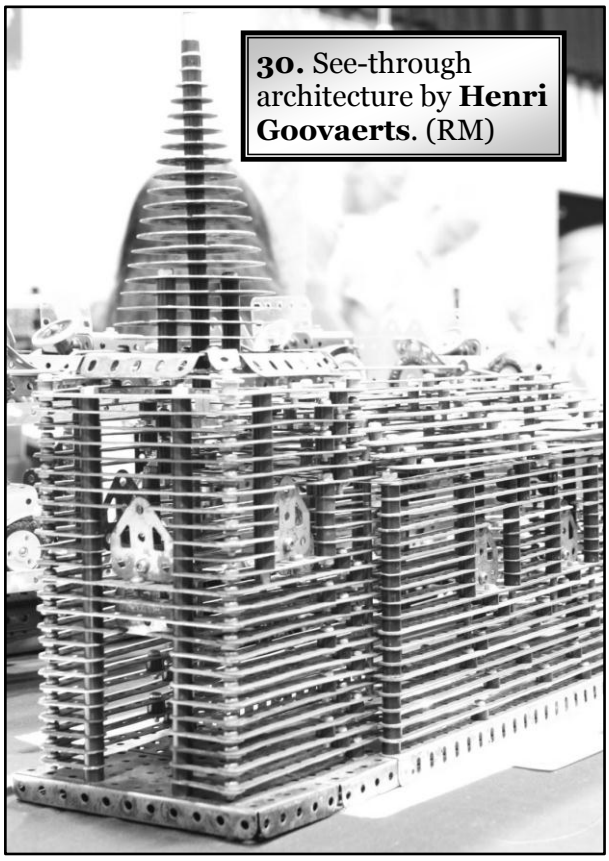
26. The huge Sobemai crane presented by **Richard Payn** was one of the trickiest models at Skegex when it came to obtaining a decent picture. (RM)

27. Details of the driver's domain (with 'cordraulics' below), machinery house and the Rack Strip-based rams for shifting the entire boom. (RM)

28. Chris Fry's unusual model of a cinema frontage spared from destruction then left to lurk behind a scaffold. (RM)

29. Petite chocolate bar, anyone? Better be quick as they'll soon be gone! **Robert Haar** had the right idea of simplifying and halving the size of Servetti's *tour de force*. (RM)

protruding inside. Becki hinted that $^{5}/_{32}$" BSW forced into flesh would have been less painful than having to build a blocksetter or steam engine; women do have a bizarre approach to Meccano as well as shoes although our picture shows she certainly knows how to curve parts.



30. See-through architecture by **Henri Goovaerts**. (RM)

Two small models Built by Henri Goovaerts

Although your reporter is completely irreligious, the 'Reading Between the Lines' church was a striking model. Looking like it was prototyped in rusty Meccano by the designer Gijs van Vaerenbergh, the original is situated at Borgloon in Henri's home country of Belgium. Mainly using Strips with some Plates in the spire - all looking to have been plundered from the depths of a dealer's quid-a-handful box and perfect for the job - Henri had produced a rendition of the semi-transparent and weathered real thing. Your reporter can't have been the only one to have peered straight through the structure.

At the other mechanised extreme, another of Henri's models was stuffed with brass and Gears. Sitting on four wheels with their axles inclined at 45°, each could be rotated around the vertical driveshaft, an 11t Pinion (could have been a 16t Bevel; was awkward to see) engaging the geared Hub teeth for propulsion. Rotating the inclined wheel axes in various combinations allowed travel in any direction from straight, through a curve of any radius which could tighten until it spun on the spot. One Motor distributed the drive via three differentials to the wheels, the course dictated by two manually-set levers on top. Watching the thing effortlessly scuttle around while Henri prodded its levers was most captivating.

Rob Mitchell

Prize-winners

An Issigonis Shield result is always more interesting when there are several candidates between which an Elektrikit Flexible Strip couldn't be inserted, rather than a clear Meccano singularity with its own event (vote) horizon. Marion and Geoff took to the stage at 16:00 on the Sunday and the results were revealed as: first - the raffle! Eh? That should be after the prizes! Had vote counters John and Tim scarpered to the bar with Meccanoland's most prestigious results prior to demanding a huge ransom payment? After some impromptu dark-Brown mutterings along the lines of placing a large bounty on their heads, it turned out that they had merely slipped out for a furtive recount because the numbers were so close and some front-runners had changed places. Scrap of paper now in hand, composure regained and his two errant helpers off the hook, Geoff began the Issigonis countdown properly with its wholly appropriate awarding to Pete Evans. We remember that Pete was the winner for 2016 but, overtaken by events, had to hurriedly depart and head for home. Cameras clicked and hands clapped as he belatedly and formally received the Shield for his Brooklands Garage. Returning to the top five places for 2017:

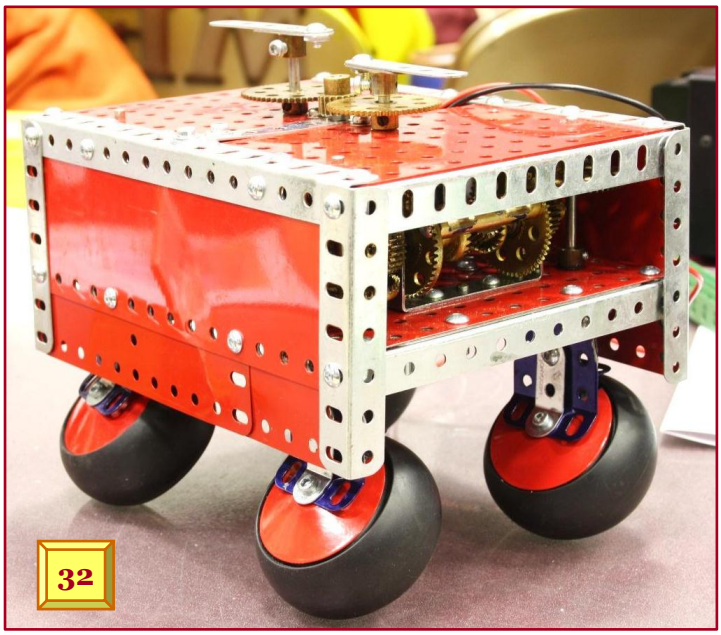
Fifth: Sennebogen grab crane by **Ian Mordue**.
Fourth: our very own **John Wilson** for his Newcomen Atmospheric Engine.
Third: fresh from victory at Meccanuity, Boeing jet airliner by **Colin Bull**.
Second: **Richard Payn**, the towering Sobemai balance crane.
First and the Issigonis Shield for 2017: went to the MSoS's **Andy Knox** for his huge and novel ball-rolling complex.

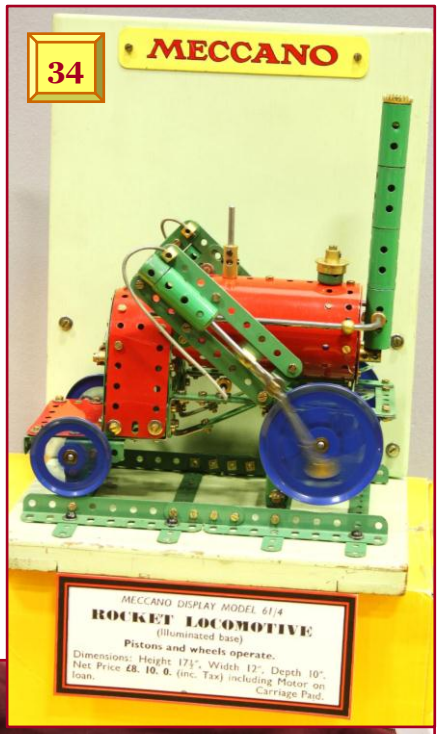
31. Trendy shoes with some equally-trendy if uncomfortable platework by **Becki Picking**. (RM)

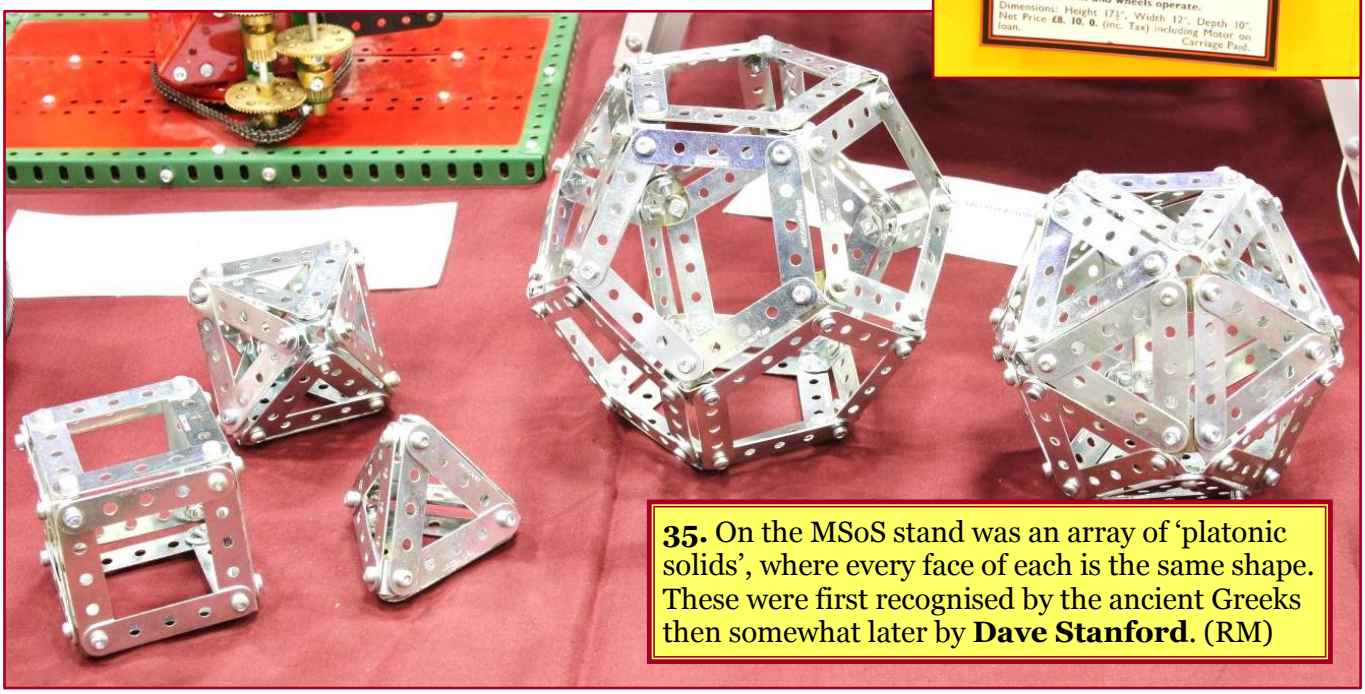
32. Henri Goovaerts definitely had some appealing models as he's been mentioned a few times in our Skegex coverage. This is his all-direction drive for a forklift working in tight spaces. (RM)

33. Andy Knox points out some finer details of his ball rolling complex to some engaged onlookers - or he's showing them where to return the inevitable wayward sphere. (KR)

34. Shop models are ideal when you want to plug in then walk away. **Jim Gamble** had several from the light red & green era which included this example that the Binns Road model room turned out at a cost of £8 10s; no doubt the more complete alternative i.e. with a tender was more expensive. (RM)







35. On the MSoS stand was an array of 'platonic solids', where every face of each is the same shape. These were first recognised by the ancient Greeks then somewhat later by **Dave Stanford**. (RM)

As Pete had the honour of passing the Shield on to Andy, the result elicited a loud cheer from north of the border er, the Embassy then a tall tale of a laudatory telephone call from a well-known Scottish politician. There are some new names in the ranking and hearty congrats to them all as landing anywhere in the top five is quite a feat.

That was more or less that; a good Skegex drew to a close with weary models packed and their also-weary builders primed for home. We stayed until Monday for the customary LMS board meeting on the (crazy) golf course with the victor footing the Bizzy Lizzies ice-cream bill. Your Ed is always thrashed, the LMS proprietor managing to knock a ball around for ages without losing it down those little holes. A true golfing talent among the novelty windmills, lighthouses, bunkers and bumpy bits.

Assuming Magna Vitae - who operate the Embassy Theatre - were happy with ticket sales, will you do it again next year, Mr Brown? As we're generous here at SMG Central, you're allowed a brief lie down in a darkened room in the meantime. *RM*

36. Better late than never, **Pete Evans** receives the Issigonis for 2016. **37.** Geoff Brown hands a certificate to **John Wilson**. **38. Richard Payn** receives second place. **39.** Pete passes **Andy Knox** the Issigonis Shield for 2017. **40.** The proud 2016 & 2017 Issigonis line-up. (KR, RM)

What's on When

16th September	NMMG with AGM and auction, Oxton, Notts, NG25 0SA
23rd - 24th Sept	**SMG at the Barrow Hill Relaunch; please liaise with Bob Seaton, below**
23rd September	NELMC, Hainault, Essex, IG6 2UT
23rd - 24th Sept	WLMS annual exhibition, Townsend School, St Albans, Herts, AL3 6DR
7th October	RMG with annual prizes and AGM, Chertsey Hall, Chertsey, Surrey, KT16 9DR
14th October	MMG, Baginton, Coventry, West Midlands, CV8 3AB
21st October	**SMG meeting with Hinged Plate theme, SMG Members' Award, President's Trophy, AGM and auction at Laughton-en-le-Morthen Village Hall (Firbeck Avenue, Laughton-en-le-Morthen, Rotherham, South Yorks, S25 1YD); see page 44 regarding the theme and AGM**
28th October	NEMS annual exhibition, St Cuthbert's Church Hall, Darlington, Co Durham, DL1 5QG
28th October	SBMC, Hall Green, Birmingham, B28 9BQ
28th October	SELMEC exhibition, Eltham, London, SE9 5AD; 10:30-16:30
4th November	TIMS with AGM, Enginuity, Coalbrookdale, Shrops, TF8 7DQ
19th November	MSoS, Smith Art Gallery, Stirling, FK8 2RQ; 14:00-16:30
25th November	HSME with AGM, Christ Church Centre, Reading Road, Henley, RG9 1AG; 13:00-17:30
2nd December	NELMC, Hainault, Essex, IG6 2UT
9th December	NEMS with annual contest (page 44), Crakehall Village Hall, North Yorks, DL8 1HG
6th January	SELMEC, Falconwood Community Centre, Kent, DA16 2PG
20th January (TBC)	NMMG with auction, Oxton, Notts, NG25 0SA
3rd February (TBC)	TIMS, Enginuity, Coalbrookdale, Shrops, TF8 7DQ
3rd February	RMG, Chertsey Hall, Chertsey, Surrey, KT16 9DR
11th February	RMG at Midhurst Modellers Exhibition
24th February	HSME, Christ Church Centre, Reading Road, Henley, RG9 1AG; 13:00-17:30
8th April (TBC)	**SMG meeting with contest (to be announced in SMGJ131) and auction at Laughton-en-le-Morthen Village Hall (Firbeck Avenue, Laughton-en-le-Morthen, Rotherham, South Yorks, S25 1YD)**
10th - 12th May	CAM 45th international exposition, Larmor-Plage 56260, Brittany, France

Contact details as it can be worth checking before travelling (www.hsomerville.com/meccanoevents)

SMG **Bob Seaton or John Ozyer-Key (page 2)** ***and please let us know if you intend to bring anything large and/or travel a substantial distance so we can reserve a space for you.***

CAM
HSME
MMASI
HTMC
MMG
MSoS
NELMC
NEMS
NMMG
RMG
SBMC
SELMEC
TIMS
WLMS

630: the last part

Hats are doffed for Ken Ashton, Mick Burgess, Russ Carr, Pepe Ferretti, Paul Furness, George Illingworth, Graham Jost, Richard Kenyon, Alan Lovett, Jean-François Nauroy, John Nuttall, John Ozyer-Key, Ron & Angela Pitches, Ken Ratcliff, John Rodgers, Bob Seaton, John Sinton, Stefan Tokarski, Bob Watson, John Wilson and all our other contributors.

To the wider benefit of the hobby, those in receipt of our *Sheffield Meccano Guild Journal* are welcome to extract or use the contents provided that both the original author and the SMG are acknowledged as the sources. Original materials are obtainable via the Editor. *RM & RC*

Continued CAM Coverage

20. Four-wheel drive breakdown crane by **Jean-Pierre Veyet**.
21. This *Iron Man* robot from **Stuart Weightman** could manage a few steps, show its foot soles and even take a bow.
22. One of the third prize-winners was **Jean-Louis Canavy** for this model of the famous 1958 'Atomium' building in Brussels.
23. Jacques Tarratre won second place for his Bordeaux crane.