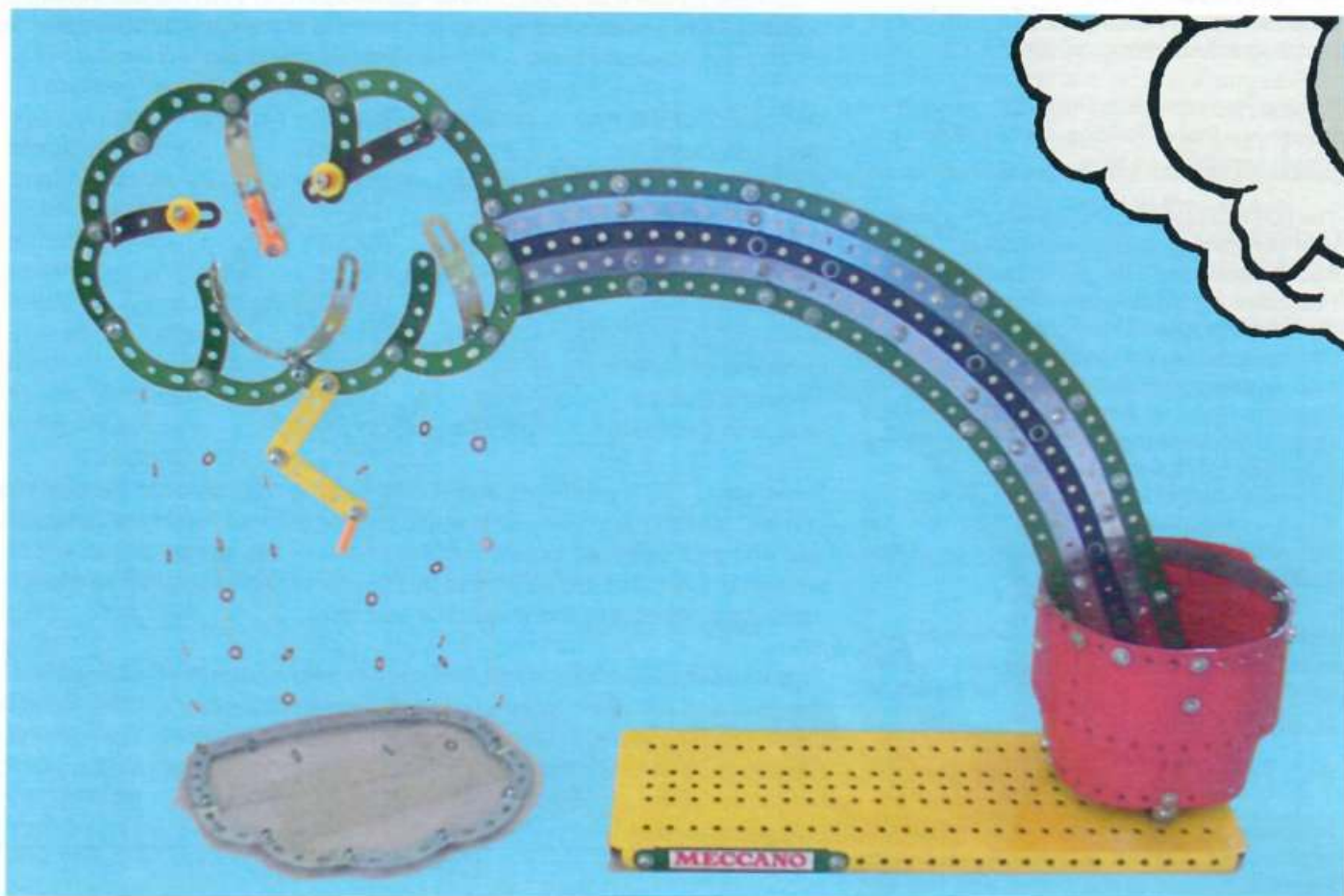




# NZFMM MAGAZINE

Volume 26 No 6

December 2002



**Anything Can Happen Under a Rainbow!**

## Merry Christmas



**Build (?) this Father Christmas - Set contains Four Balls of Wool and Two Knitting Needles (Plastic) with Detailed Instructions.**

**MECCANO? Well, hardly!**

## NZ Federation of Meccano Modellers Magazine

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The NZFMM Magazine is published six times a year in February, April, June, August, October and December. The publisher is the NZ Federation of Meccano Modellers. The purpose of the magazine is to publish articles and photographs about Meccano and Meccano models, to report the meetings of New Zealand Meccano Clubs, to print letters expressing the views of Meccano modellers, to keep members informed of future events and to print advertisements of Meccano related things. The views expressed in the magazine are not necessarily those of the editor or of the Federation.

Letters are welcome and may be sent by post or by email. The author's name and address must be supplied. Publication of letters will be at the editor's discretion.

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### Subscriptions for 2003

A notice regarding subscriptions will be included in the February 2003 issue of the magazine.

*Father Christmas, on the cover, was made by Alison Geange. We don't know where the "set" may be obtained!*

## Christmas Comes But Once a Year

(And when it comes it is b---y dear)

I am sure that many of us now in the peak of life with spare time and spare cash would dearly love to see the quality, quantity and choice of Meccano sets available today as they were in the 1950-70s. How enthused are you to go down to your quality toy shop and spend up large for yourself or young relatives on the 2001 and 2002 offerings? I found this 49 year old, 1953 New Zealand pricelist (in shillings and pence) from the days of import licences, tightly controlled access to overseas currency, and 60% sales tax on toys too much to bear.

|                   |        |            |
|-------------------|--------|------------|
| Meccano Outfit 0  | 13/3   | (\$1.32)   |
| Meccano Outfit 1  | 21/9   | (\$2.18)   |
| Meccano Outfit 2  | 28/6   | (\$2.85)   |
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| Meccano Outfit 5  | 82/6   | (\$8.25)   |
| Meccano Outfit 6  | 102/6  | (\$10.25)  |
| Meccano Outfit 7  | 150/-  | (\$15.00)  |
| Meccano Outfit 8  | 260/-  | (\$26.00)  |
| Meccano Outfit 9  | 400/-  | (\$40.00)  |
| Meccano Outfit 10 | 1075/- | (\$107.50) |

Never mind. Shut your eyes and remember the red colour of the box after you had torn off the brown paper wrapping, the lifting of the lid, the reflections and shine of polished brass, the deepness of the green colour and the scream of the red plates all framed by the yellow background of the stringing cardboard. What was the smell of a new set?

This issue is deliberately totally different in layout from the issues earlier in the year and my deep thanks to the various contributors and the editorial team. To all readers, a Merry Christmas and a Happy New Year, and you have to build at least one model between Christmas and New Year just for old times sake.

R. Bruce Neilson

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## Correction

Concerning the whereabouts of the Plains Railway - October page 3 - Rob Campbell says, "You're quite correct. I knew it was Tinwald in South Ashburton. My primary education was in central Waikato at a hydro station village where most children were half or full Maori. We were well educated, and I developed an ability to speak and spell the Maori language and place-names very well. Unfortunately, unless I concentrate, I have been somewhat dyslexic about two pairs of towns ever since. They are Invercargill/Dargaville and Ashburton/Masterton, both contradictory north/south. (Sorry, south/north)! Sometimes it's good to laugh at yourself."

## A Rainbow and Stormcloud

design and text by Terri-Ann McGuigan

reprinted by kind permission of the Sheffield Meccano Guild Journal, September 2001.

© Copyright in all forms is retained by SMGJ for this article. rebuild and picture by Bob Prescott.

**1. The Cloud.** Construct the cloud using  $2\frac{1}{2}$ " Curved and Stepped Curved Strips. Form these into a cloud shape. To achieve the bulge of the cloud use Obtuse Brackets at selected points and fix Formed Slotted Strips to give the cloud some depth. Attached to the cloud is a lightning strike built from  $2\frac{1}{2}$ " and  $1\frac{1}{2}$ " Strips. The rain is made from nylon thread with thin Washers tied on at regular intervals, the threads then tied to the bottom of the cloud. Attach eyes, nose and mouth.

**2. The Rainbow.** This is made from three  $5\frac{1}{2}$ " Curved and two  $3\frac{1}{2}$ " Perforated Strips (red); three  $5\frac{1}{2}$ " Curved and one  $5\frac{1}{2}$ " Perforated Strip (yellow); three  $5\frac{1}{2}$ " Curved and one  $5\frac{1}{2}$ " Perforated Strip (green); three  $5\frac{1}{2}$ " Curved and one  $2\frac{1}{2}$ " and 2" Perforated Strip (medium blue); three  $5\frac{1}{2}$ " Curved and two 2" Perforated Strips (dark blue). Fix the respective coloured

Strips together to form an arc shape and then fix all the coloured arcs together using  $2\frac{1}{2}$ " Perforated Strips at the back of the rainbow at set intervals. Then bolt the cloud to the rainbow at the end of the Curved Strips.

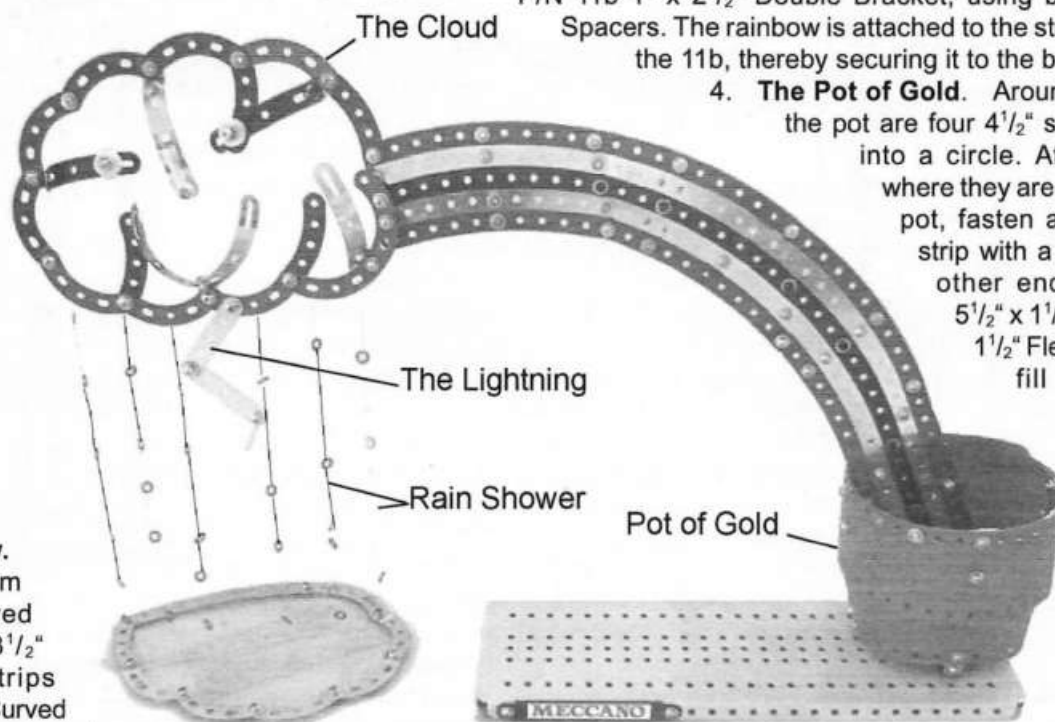
**3. Fitting to the Stand.** This is built around a 3" Pulley at the base. At quarter sections of the Pulley fit a long Bolt, the Pulley, a small black Plastic Spacer, a Fishplate, then a Nut. The rainbow is secured above the Pulley. This is done by first fitting a  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flanged Plate to the Pulley, spaced away using black Plastic Spacers and flanges down. On either side of this plate bolt a 1" x  $1\frac{1}{2}$ " Flanged Plate, secured by their flanges. To their top flanges is bolted an P/N 11b 1" x  $2\frac{1}{2}$ " Double Bracket, using black Plastic Spacers. The rainbow is attached to the strip portion of the 11b, thereby securing it to the base.

**4. The Pot of Gold.** Around the top of the pot are four  $4\frac{1}{2}$ " strips formed into a circle. At the points where they are joined to the pot, fasten another  $4\frac{1}{2}$ " strip with a Hinge at its other end. By using  $5\frac{1}{2}$ " x  $1\frac{1}{2}$ " and  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plates, fill in the pot.

Bolt each Hinge to the Fishplates under the 3" Pulley. Using the Bolts holding the Fishplates to the Pulley, fix to

a suitable platform such as a  $13\frac{1}{2}$ " x  $4\frac{1}{2}$ " Flanged Plate.

**5. The Puddle.** Place a dozen blue  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flexible Plates or similar under the strings of rain.



### Parts List

| Part | Description          | Size                  | Qty | Part  | Description          | Size                                | Qty | Part | Description          | Size                                 | Qty |
|------|----------------------|-----------------------|-----|-------|----------------------|-------------------------------------|-----|------|----------------------|--------------------------------------|-----|
| 2    | Perforated Strip     | $5\frac{1}{2}$ "      | 2   | 37    | Nut and Bolt         |                                     | 90  | 114  | Hinge                |                                      | 4   |
| 2a   | Perforated Strip     | $4\frac{1}{2}$ "      | 8   | 37a/c | Nuts                 |                                     | 8   | 188  | Flexible Plate       | $2\frac{1}{2}$ " x $1\frac{1}{2}$ "  | 12  |
| 3    | Perforated Strip     | $3\frac{1}{2}$ "      | 2   | 38a   | Plastic Spacer       |                                     | 8   | 189  | Flexible Plate       | $5\frac{1}{2}$ " x $1\frac{1}{2}$ "  | 4   |
| 5    | Perforated Strip     | $2\frac{1}{2}$ "      | 8   | 38b   | Mini Plastic Spacer  |                                     | 4   | 194a | Flexible Plate       | $2\frac{1}{2}$ " x $2\frac{1}{2}$ "  | 12  |
| 6    | Perforated Strip     | 2"                    | 3   | 51a   | Flanged Plate        | $1\frac{1}{2}$ " x $1\frac{1}{2}$ " | 2   | 215  | Formed Slotted Strip | 3"                                   | 6   |
| 6a   | Perforated Strip     | $1\frac{1}{2}$ "      | 1   | 51b   | Flanged Plate        | $1\frac{1}{2}$ " x $1\frac{1}{2}$ " | 1   | 235g | Narrow Strip         | $1\frac{1}{2}$ "                     | 1   |
| 10   | Fishplate            |                       | 4   | 89    | Curved Strip         | $5\frac{1}{2}$ "                    | 15  | 236  | Flanged Plate        | $13\frac{1}{2}$ " x $4\frac{1}{2}$ " | 1   |
| 11b  | Double Bracket       | 1" x $2\frac{1}{2}$ " | 2   | 90    | Curved Strip         | $2\frac{1}{2}$ "                    | 2   |      | M4 Washers           |                                      |     |
| 12c  | Angle Bracket Obtuse |                       | 5   | 90a   | Curved Strip Stepped | $2\frac{1}{2}$ "                    | 9   |      | Nylon Thread         |                                      |     |
| 19b  | Pulley               | 3"                    | 1   | 111   | Bolt                 | $\frac{1}{2}$ "                     | 4   |      |                      |                                      |     |

### WANTED

### A New NZFMM President for 2003 - 2005

In accordance with the motion carried by NZFMM members at the 1999 biennial meeting, wherein the President is only allowed to serve for two x 2 year terms in succession, my term finishes on 19 April 2003. Nominations for President (even nominating yourself) are invited from members for 2003 to 2005.



My telephone number is 04 973 6177, (or a letter to 46 Jackson Street, Island Bay, Wellington), and I will be happy to receive calls even if they are initially for an exploratory chat.

Lou Nichols, President NZFMM.



must of course be taken into consideration before the type of bridge can be decided upon. Should the river be navigable the bridge must be placed at such a height that it will not interfere with the traffic on the water. On the other hand, in cases where the river banks are almost on the same level as the river the construction of a high bridge many feet above the water line is not always practicable, for the cost and inconvenience of building the necessary inclined approaches would be very great.

In some cases the difficulty has been overcome by the construction of swing bridges (as over the River Tyne at Newcastle) or drawbridges (as in the case of the Tower Bridge over the Thames) but it may be said that the use of bridges of this type is confined generally to comparatively narrow rivers. More over, the steering of large steamers through the narrow opening of a swing bridge calls for considerable navigating skill, and if a strong tide is running at the time, there is considerable risk of the ship fouling the piers of the bridge.

Consequently in certain places, use is made of transporter bridges. These consist essentially of a girder suspended at such a height that it clears the tallest masts, and rails fixed to this girder carry a trolley from which a car is suspended by steel cables. The car is moved across the river by steam or electric power, and the level of the car platform being the same as that of the approaches the road traffic passes direct from the shore into the car and vehicles and pedestrians are carried bodily across the river. The chief drawback to bridges of this type is, of course, the time taken in loading and unloading the car. Also whilst the car is taking one load across other road traffic may be held up until the car has completed the double journey. Hence it is improbable that transporter bridges will be made use of

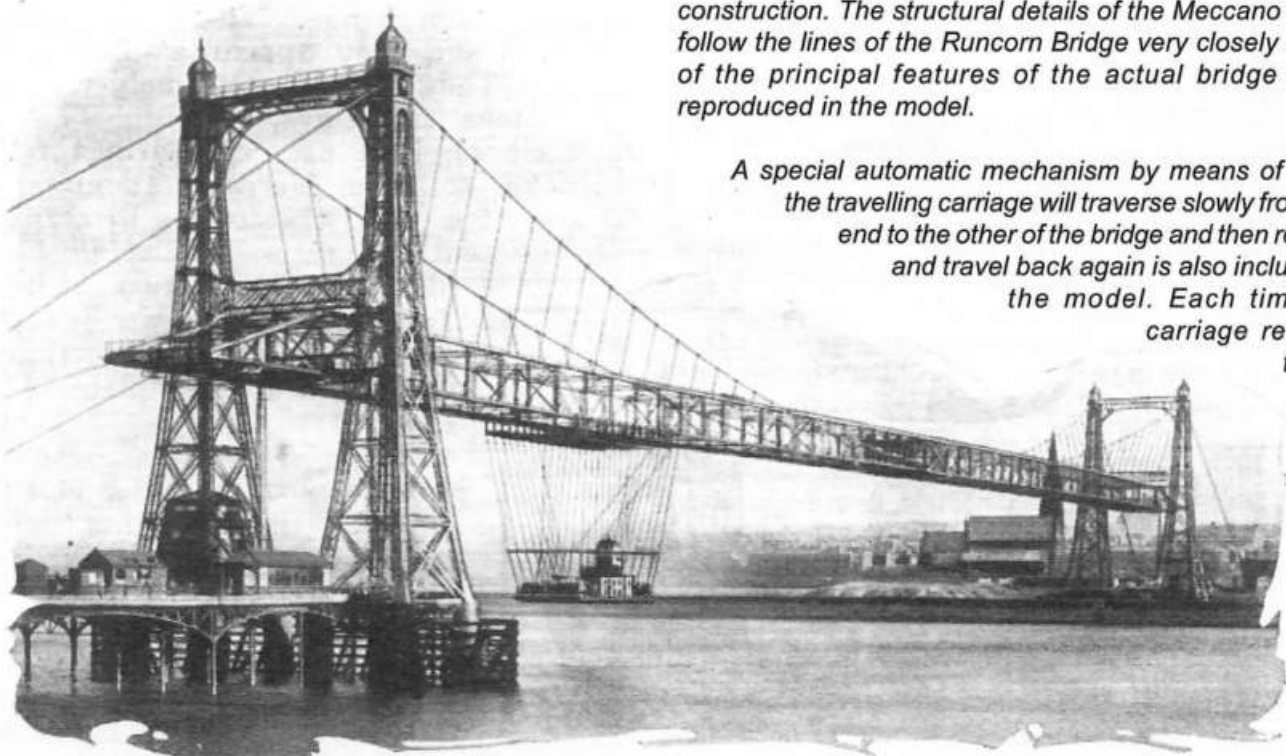
in the future except in places where the amount of road traffic is small.

The first transporter bridge was designed in 1872 to cross the River Tees at Middlesbrough, but owing to financial reasons the bridge was never built. For some years thereafter the transporter type of bridge remained more or less a novelty until Palacios, an architect of Bilbao, and Arnodin, a French engineer, took out a patent for this system of bridge design. In 1893 they designed and erected a transporter bridge at Portugalete, near Bilbao, the main span of the bridge being 148 feet above high water level and built in the form of a suspension bridge with "stiffening" girders. In 1897 a transporter bridge was erected across the River Seine at Rouen. It has a span of 472 feet and is operated by electric motors fixed to the top of the car. The towers are 280 feet in overall height.

Perhaps the most notable example of a transporter bridge is that which crosses the River Usk at Newport in Monmouthshire. The following are a few details of the principal features of the bridge: the span between the towers is 645 feet and the girders are clear of high water level by 177 feet. The car itself is 33 feet in length by 40 feet in width and is driven by two electric motors each of which is of 35 h.p. The legs of each end tower are hinged and sixteen steel cables, eight inside and eight outside, suspend each of the two stiffening girders. Each of these cables contains 127 wires and weighs 4 tons. There is also a similar number of anchor cables which are fixed to foundations consisting of large blocks of masonry totalling 35,000 cubic feet. Each of the end towers rests on piers containing some 19,500 cubic feet of masonry and concrete.

Another famous transporter bridge is that which crosses the River Mersey between Runcorn and Widnes. This bridge is of the suspended girder type and is of very massive construction. The structural details of the Meccano model follow the lines of the Runcorn Bridge very closely - most of the principal features of the actual bridge being reproduced in the model.

A special automatic mechanism by means of which the travelling carriage will traverse slowly from one end to the other of the bridge and then reverse and travel back again is also included in the model. Each time the carriage reaches  
t h e



The Transporter Bridge over the River Mersey at Runcorn, Cheshire

*landing platforms at either end of the bridge it pauses for a brief period before moving away again to the opposite end. This process is repeated automatically so long as the electric current is supplied.*

*The constructional details of the towers and the main bridge are dealt with fully in this issue. The automatic reversing gear and the construction of the travelling carriage will be described and fully illustrated in next month's MM.*

*These model instructions were published in 1928 as a Super Model Plan .*

The transporter bridge featured in the BBC programme was the one in Middlesbrough. This is not the one used for the Meccano model; its construction is rather different.

### The Middlesbrough Transporter Bridge

The Middlesbrough Transporter Bridge was built in 1907 by Cleveland Bridge and Engineering of Darlington and opened in 1911. It spans the River Tees and carries 750 people and 600 vehicles a day in the carrying car which crosses over 160 feet above the river. The crossing takes about two and a half minutes. Passengers and vehicles are transported by means of a large moving platform which is capable of carrying nine vehicles at a time.



Middlesbrough is in the north east of England, about 50km south of Newcastle. The Transporter Bridge crosses the River Tees and is 850 feet (255m) long, 225 feet (67.5m) high. It is a giant crane like structure, which is a cross between a ferry and a bridge. Every year the bridge carries approximately 350,000 vehicles and 1,500,000 passengers

There were two other transporter bridges in England:

### The Widnes-Runcorn Transporter Bridge

This is the bridge on which the Meccano Super Model is based, no doubt because it is not far from the home of Meccano in Binns Road, Liverpool. The Widnes-Runcorn Transporter Bridge was opened in 1905 to replace the previous ferry and to supplement the toll footbridge that

ran beside the railway bridge across the River Mersey.

The transporter design was chosen here because the Manchester Ship Canal, running alongside the River Mersey at Runcorn, carried tall ocean-going ships, which a low-level bridge would have obstructed. At the time, the expense and engineering complexity of a high-level road bridge were prohibitive, although a high-level railway bridge had been constructed some years earlier (1868). The total cost of the Transporter Bridge was £130,000, about one third of the cost of a high-level bridge.

The bridge was a magnificent feat of Edwardian engineering. The span of the bridge across the Mersey was 1000ft [305m]. The bridge towers stood 190ft [58m] above high water, and the main cables supporting the bridge were 12in [300mm] thick. However, the suspended car was very sensitive to adverse weather, and would often be closed down in high winds.

Widnes Corporation had a controlling interest in the bridge, and as the operators of the bus department, arranged a fairly integrated transport service, with a Corporation bus stop only yards away from the bridge ticket office. The bus service on the Runcorn side was privately operated, and not so well integrated: the nearest bus stop was about a mile from the bridge.

When a high-level road bridge was finally built and opened on 21 July 1961, the Transporter Bridge was closed. Demolition proceeded almost immediately.

### The Warrington Transporter Bridge

The Warrington Transporter Bridge, which was constructed in 1916, also over the River Mersey, is maintained in working order but hasn't been in use since 1964.

### The Newport Transporter Bridge

Another working bridge in the UK is in Wales. It is the Newport Transporter Bridge over the River Usk in Monmouthshire. Built by a Frenchman Monsieur F Arnodin, the bridge was opened in 1906. It has now become a tourist attraction. The bridge has a span of 645 feet measured from the centre of each of its towers. The gondola is 33



feet long, 40 feet wide and travels at 10 feet per second and can carry a maximum of 6 cars or small vans at one time. The whole contrivance is driven by two electric motors.

The Newport Transporter Bridge is a steel hybrid suspension/cable stayed bridge near the mouth of the River Usk. The bridge stands some 75m tall with a clear span of 197m. In 1985, wire breakages within the cables resulted in closure, and a level of holding maintenance was established while funds were sought for more permanent remedial measures.

A £3m scheme to conserve and refurbish the bridge began in 1992 and resulted in the bridge being reopened in December 1995. The project has ensured the survival of this landmark structure.

### Other Surviving Transporter Bridges

Elsewhere in the world Transporter Bridges can be found in Rendsburg in Germany and in Portugalete (Vizcaya) in Spain.

### Who Designed These Bridges?

The construction of the two bridges across the Mersey, the Widnes Transporter Bridge and the Warrington Bridge at Bridge Foot were the work of John James Webster (1845-1914), a Warrington born engineer. This eminent Westminster-based engineer had a worldwide reputation for bridge and pier building,

before he embarked on the design of Britain's first transporter bridge early in 1900. He then built the Shepherds Bush Stadium for the 1908 Olympic games before the Warrington Corporation commissioned him in 1912 to oversee the new crossing at Bridge Foot.



Right, that's the story. You don't need to be a John Webster so how about building a Meccano Model of a transporter bridge? It does not need to be as complicated as the one in the Super Model example at the beginning of this article. What about trying something like the model illustrated on the cover of the April 1999 Meccano Magazine?



### Auckland Meccano Club Christmas Message

by David Wall

On behalf of the Auckland Club I wish all Federation Members a very happy festive season and look forward to meeting some of you next Easter.

Our 2003 meetings are as follows: 15 February\* - David Wall; 10 May - Peter Hancock; 9 August - Neil Carey; 8 November - George Ovenden, tentatively - otherwise David Wall

With the exception of \*February, all meetings are on the second Saturday of the month and start at 2.00 pm - all welcome - partners included.

## Death of a Dinosaur - Part IV

Reprinted by kind permission of The Hornby Railway Collector Magazine Issues June, July and August 2001.

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### Business strategy which led to business failure

In considering the broad lessons to be learnt from Meccano's failure, it is important to bear in mind that the typical business enterprise is a defunct one. The firm which survives through several generations is the exception, and it is self evident that the concomitant of structural change in any economy must be the disappearance of manufacturing companies. Products, like people, have life cycles, moving from birth through to maturity and eventual decline. In this sense, perhaps, business history concerned with identifying the causes of company failure is merely seeking to explain the inevitable. For the same reason a general overview of Meccano's history must stress that a life span of seventy years, most of them highly profitable, is indicative of health and strength, not weakness.

Nevertheless, even if death is inevitable there is still value in conducting a post-mortem on its immediate causes and there are some general conclusions that might usefully be drawn from this case study of Meccano. First, it appears to provide yet another example of a small, family owned, British company prospering under its founder and then floundering under second generation leadership. Certainly, it has been suggested that both Roland Hornby and his brother Douglas were more interested in the golf course than the family business. It also true that like many similar firms, Meccano was characterised by a very amateurish policy towards management training. Loyalty and long service were more highly regarded than formal qualifications, with the result that senior executives lacked the ability to extract the company from the time warp into which Frank Hornby's success had locked it. His advertising, for example, had utilised the press and the youth organisations, two of the most potent social forces of his day, to reach the buying public. His successors were slow to appreciate the potential of new advertising methods,

particularly commercial television and character merchandising. In a similar fashion they failed to adapt sufficiently quickly to changing the patterns of domestic retailing.

Second, as a leading British toy manufacturer Meccano does seem to have exhibited weaknesses that were typical of the rest of the sector. More important, perhaps, it is clear that as a small to medium sized firm (peak employment was about 2000) the company shared many of the management deficiencies identified in the major corporations by D F Channon, particularly the emphasis on quality without due regard to price, inefficient production, poor industrial relations, and low capital investment.

In some ways, too, the

firm's failure fits quite neatly into Michael Porter's analytical framework of generic competitive strategies. Meccano was successful in the years before 1955 because it pursued effective product differentiation (construction sets in 1903, 0-gauge trains in 1920, Dinky toys in 1934 and Hornby Dublo Trains



1915 No 6 Set

in 1938). Thereafter it stagnated because its products failed to evolve and there was no substantial diversification, nor indeed, much of a capacity to develop it.

With the event of Tri-ang Railways in the 1950's Meccano revamped the basic clockwork 0-gauge system around 1957 to compete in this price sector. The customers wanted cheap electric trains not the old tinplate clockwork types; plastic injection moulding had arrived.

At toy fairs Meccano staff would visit the Rovex stand to see what the competition were doing, but they gave the impression that they saw Hornby Dublo as being on a different plane to Tri-ang Railways which they regarded as a novel toy and not a serious model. This was quite to the point; there was no comparison between the two systems. In fact the quality of a Dublo mechanism surpasses a 1990's Hornby Railways mechanism even today based on durability, running qualities and maintenance.

The point Meccano should have realised was they needed something similar in production to Tri-ang's and as immediately as possible. The fact that Tri-ang was

improving and expanding so fast that it was destroying their business seemed to be unimportant. There was a total lack of urgency within the company.

When eventually Meccano realised the mistake, it was by then 1963. Unfortunately at this late stage Meccano only had months left as a family controlled independent company. They reacted with the Hornby electric 00 starter sets in which it was too late. Tri-ang and Playcraft had come to dominate this cheap model railway priced sector, Tri-ang having taken the market lead from Hornby by around 1960.

Products failed to evolve and if they did, were executed wrongly. With the launch of Hornby Dublo 2-rail in 1959 it missed the important Christmas period for that year by 2 months. Delays put the releases to early 1960 for the bulk of the new items so another 12 months would elapse before the trains could be sold in quantity.

The system was flawed in the track design. They used live frogs which needed complicated wiring and isolation rails to build simple sidings. The chief draughtsman had been a scale railway modeller and the resulting 1959 2-rail track was too fragile for children to use, although it did look superb. This was rectified in 1963 when Dublo changed from nickel silver to bright steel track. The joining chairs at either end of the rail section were strengthened. They also introduced the Simplex points to overcome the wiring and isolation rail problems of the previous live frog point design. These mistakes had pushed customers already to the simpler robust Tri-ang system.

The huge investment in Dublo 2-rail and the non return on assets was the final blow to the company in 1964. Vast amounts of shareholders' money were gambled on the new 2-rail system and it did not pay off. In fact the company only went into slow decline after this date. The acquisition of Plimpton Engineering in the late 1940's, is another example. It gave Meccano ownership of Bayko, a plastic building set which could well have been marketed in such a way as to appeal to girls. It never flourished, however, because there was never any real vision for it, nor any commercial commitment to it. When, subsequently, wider diversification was tried, it failed. Meccano could not even maintain cost leadership in its own specialised fields because of low productivity. The result was mediocrity and deteriorating performance. By the 1970's diversification was pretty well restricted to turning out other companies' products for which Meccano had bought the manufacturing rights.

Meccano's history also confirms the widely held view that one of the major formative influences on any company is

the founder. It was Frank Hornby who made the name Meccano synonymous with high quality, innovative products, excellent advertising, and first rate consumer service. Both senior managers and workers alike were committed to the view that Meccano was simply the best. The success which the firm enjoyed under Hornby's dynamic leadership and the artificially protected prosperity of the post-war years served to encourage the view that the very name itself was enough to generate sales. But the firm grew flabby and complacent, lacking the impetus to new thought that might have been provided by formal management training or a steady flow of executives recruited from outside the company's tradition. In key areas such as product design and development, production processing, cost control, marketing, labour relations, and management was found wanting. Few of the long serving executives appreciated the need for change in the face of competition. Many of them went when the Lines Brothers took over, but their loss, coupled with attempts to change working practices, served to weaken any sense of company loyalty, particularly when Lines moved production of the Hornby Dublo Trains from Liverpool to G & R Wrenn in Essex.

Under Airfix the turnover of senior staff was eventually such that no notion of company identity could survive. On the shop floor, attempts to improve productivity antagonised the workforce whose declining loyalty to Meccano was exacerbated by the general industrial militancy which characterised the 1970's in general and Liverpool in particular.

For fifty years Meccano enjoyed an active and undisputed mastery of its world. But as that world evolved the firm was increasingly outmoded.

Like a dinosaur it proved unable to adapt its either rather ungainly management structures or its methods and types of production to the more fiercely competitive environment in which it found itself after 1955. Managerial sclerosis set in and, as a result, the company proved increasingly attractive to predators. Neither Lines Brothers nor Airfix was able to save it from its final extinction which was hastened by the parasitical activities of the labour force.

It was symptomatic of the role that even after the company was officially declared defunct the unions organised a sit-in for 3 months at the lifeless Binns Road factory. Now, even that carcass has gone, pulled down to make way for a redevelopment into a cinema complex. Only the fossils remain, eagerly sought after by collectors in antique shops and auction rooms throughout the world.

(This concludes the story)

## WANTED – Meccano Magazines

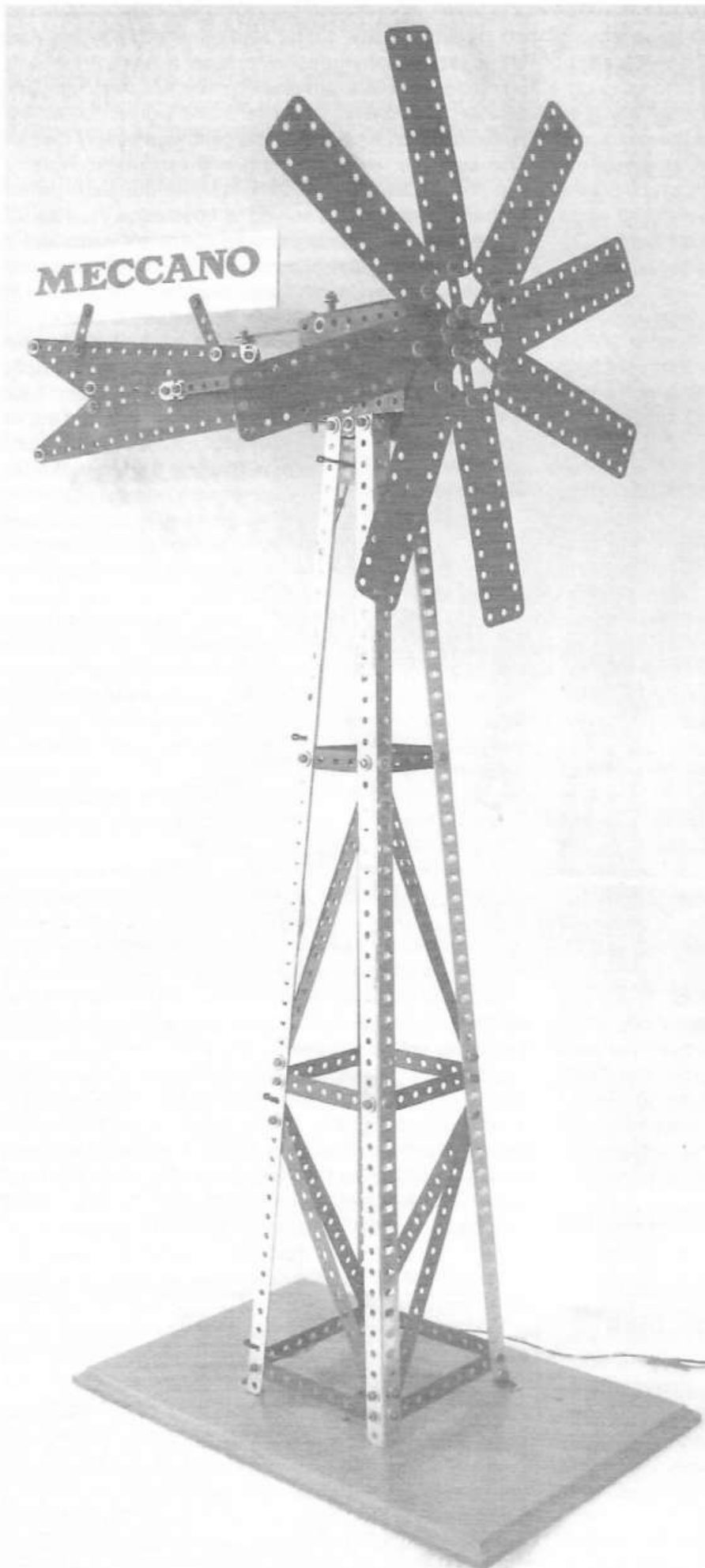
The following Meccano Magazines with covers, in reasonable condition at a reasonable price. 1964 November; 1969 November; 1970 January; 1973 April; 1975 January, April, November; 1976 January, April, July; 1978 July, November; 1979 January, November; 1980 November; 1981 January.

Contact Bob Prescott - Telephone 06 323 9963, Fax 06 323 9965, Email <rijp@xtra.co.nz>.

## News Flash



Peter Kessler has advised that he will be visiting New Zealand during February 2003. He will be travelling with his daughter and expects to arrive in Auckland and then travel down to Wellington by car, cross to Picton and visit the West Coast, Queenstown and maybe Milford Sound before returning to Christchurch where they will depart for home in Switzerland.



## A Windmill for Meccano Displays

designed by Bruce Geange.

text and pictures by Bruce Neilson.

### To attract the viewing public, a Meccano display needs:

(1) a model with non-stop movement and  
(2) a model which extends well above the height of the table top. This model meets both of those criteria very well and can be built in a day. The vanes and tail sections are removable for transportation. All the parts are "run of the mill" and so the model can be left built up. The pictures give the basic design of the layout of the model.

### The Tower

Four 24 $\frac{1}{2}$ " Angle Girders plus bracing make up the Tower which is joined at the top by 1 $\frac{1}{2}$ " Perforated Strips. The fake pump rod is made up of multi Axle Rods through the centre of the Tower with simulated pump (Double Arm Crank and Coupling) screwed to the base. A neat wooden base and Meccano signs add eye candy.

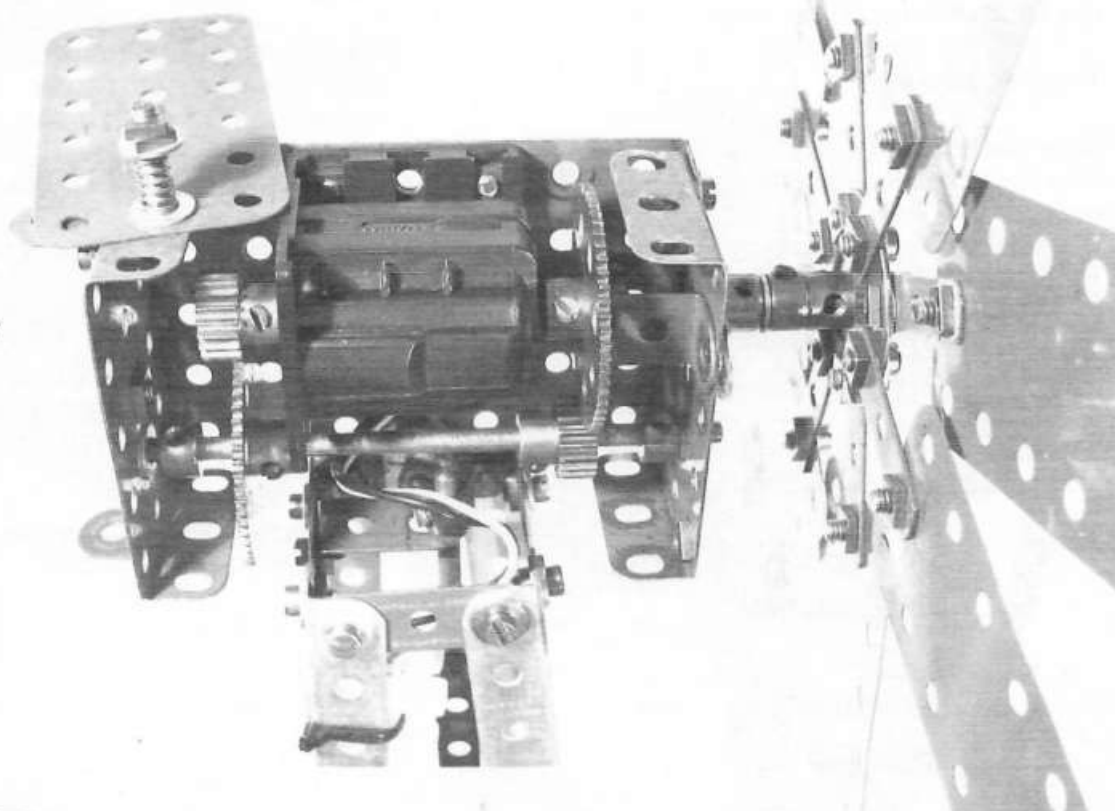
### The Motor Box

The Motor Box is pictured with the side panel removed and the top plate cover, (3" x 1 $\frac{1}{2}$ " which is spring loaded to allow access to oil the gearing), pivoted to one side. A MO motor is geared down by a  $\frac{1}{2}$ " Pinion onto a 1 $\frac{1}{2}$ " Gear Wheel which is carried on an Axle Rod with another  $\frac{1}{2}$ " Pinion. A 1 $\frac{1}{2}$ " Gear Wheel is fixed to a Axle Rod to drive the Vanes. This Axle Rod runs through a Double Bent Strip, P/N 51 and a Double Arm Crank (acting as additional bearing). The Axle Rod then carries a fixed Collar, loose Bush Wheel carrying the Vanes and another fixed Collar squeezed up to make a friction clutch.

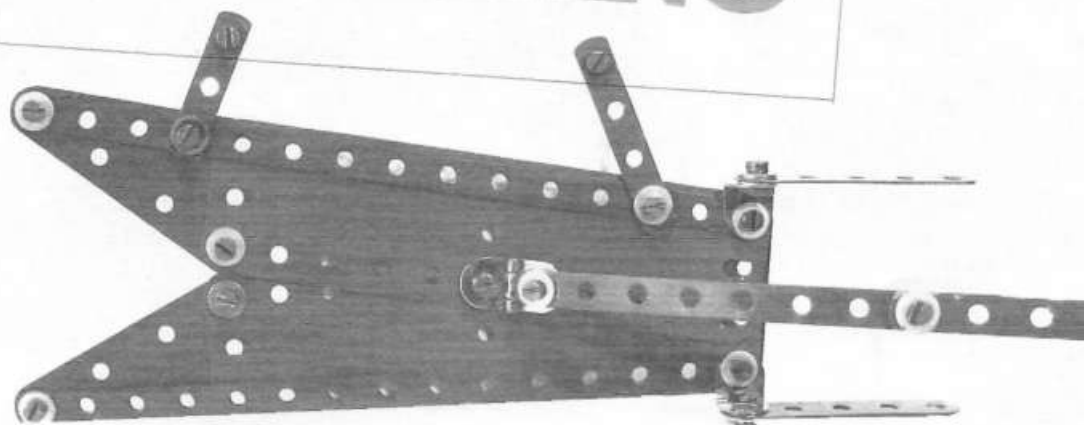
### The Tail

An Axle Rod pins the tail onto the back of the Motor Box and a long Bolt on the end of the Narrow Strip friction fits into a hole on the side of the Motor Box.

*The Windmill Motor  
and Gearbox.*



# MECCANO



*The Tail Piece*

## Parts List

| Part | Description      | Size        | Qty | Part | Description        | Size            | Qty | Part                    | Description               | Size            | Qty |
|------|------------------|-------------|-----|------|--------------------|-----------------|-----|-------------------------|---------------------------|-----------------|-----|
| 1b   | Perforated Strip | 7 1/2"      | 4   | 18a  | Axle Rod           | 1 1/2"          | 1   | 73                      | Flat Plate                | 3" x 1 1/2"     | 1   |
| 2a   | Perforated Strip | 4 1/2"      | 4   | 24   | Bush Wheel         | 1 3/8"          | 1   | 111.                    | Bolt                      | 3/4"            | 1   |
| 3    | Perforated Strip | 3 1/2"      | 4   | 26   | Pinion             | 1/2" x 1/8"     | 2   | 111a                    | Bolt                      | 1/2"            | 1   |
| 5    | Perforated Strip | 2 1/2"      | 6   | 27a  | Gear Wheel         | 1 1/2"          | 2   | 114                     | Hinge                     |                 | 1   |
| 6.   | Perforated Strip | 2"          | 1   | 37b  | Bolt               |                 | 101 | 189                     | Flexible Plate            | 5 1/2" x 1 1/2" | 8   |
| 6a   | Perforated Strip | 1 1/2"      | 4   | 37c  | Nut                |                 | 103 | 212                     | Rod & Strip Connector     |                 | 2   |
| 7    | Angle Girder     | 24 1/2"     | 4   | 38   | Washer             |                 | 115 | 221                     | Triangular Flexible Plate | 2 1/2" x 1 1/2" | 2   |
| 10   | Fishplate        |             | 2   | 45   | Double Bent Strip  |                 | 1   | 235.                    | Narrow Strip              | 2 1/2"          | 1   |
| 12.  | Angle Bracket    | 1/2" x 1/2" | 4   | 48a  | Double Angle Strip | 2 1/2" x 1 1/2" | 1   | 235b                    | Narrow Strip              | 3 1/2"          | 1   |
| 12b  | Angle Bracket    | 1" x 1/2"   | 1   | 51   | Flanged Plate      | 2 1/2" x 1 1/2" | 2   | 235d                    | Narrow Strip              | 4 1/2"          | 1   |
| 15b  | Axle Rod         | 4"          | 1   | 53   | Flanged Plate      | 3 1/2" x 2 1/2" | 2   | 235?                    | Narrow Strip              | 1 1/2"          | 7   |
| 16a  | Axle Rod         | 2 1/2"      | 1   | 59   | Collar             |                 | 6   | 235?                    | Narrow Strip              | 7 1/2"          | 9   |
| 16b  | Axle Rod         | 3"          | 1   | 62b  | Double arm Crank   |                 | 2   | 235?                    | Narrow Strip              | 2"              | 1   |
| 17   | Axle Rod         | 2"          | 1   | 63   | Coupling           |                 | 1   | MO                      | Motor                     |                 | 1   |
|      |                  |             |     |      |                    |                 |     | Grub Screws as required |                           |                 |     |

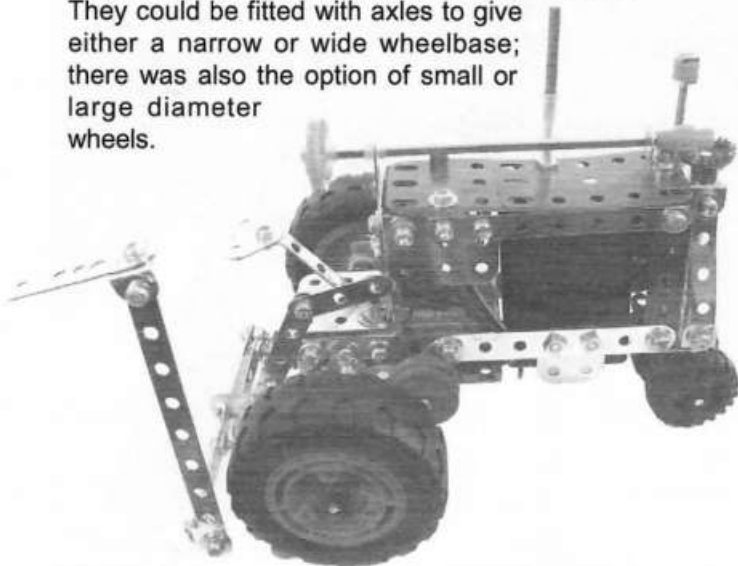
## International Harvester F20 Farmall Tractor with Mower

designed by Bruce Geange  
text and pictures by Bruce Neilson

### The Prototype

Some 148,960 International Harvester F20 Farmall Tractors were produced between 1932 and 1939. The tractors were equipped with four cylinder 20hp engines and had four forward speeds allowing speeds of up to  $3\frac{3}{4}$  mph.

They could be fitted with axles to give either a narrow or wide wheelbase; there was also the option of small or large diameter wheels.



### The Model

The parts for this model come mainly from the 20/30/40/50 sets of the late 1990s.

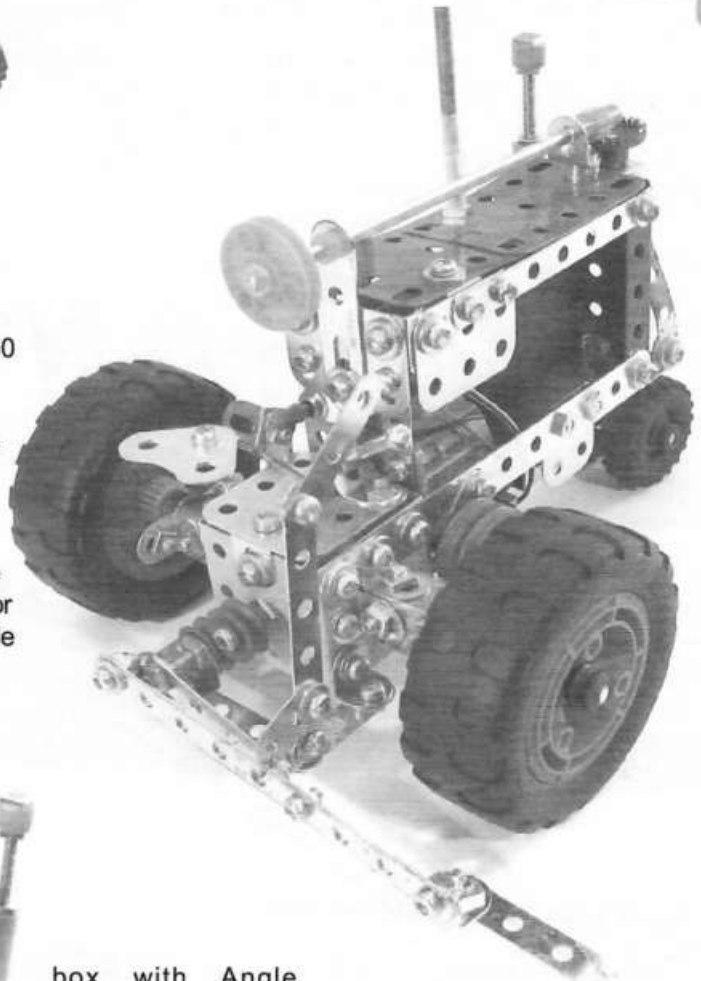
Start construction with the MO motor and  $1\frac{1}{2}$ " cube reduction box which forms the start of the chassis then bolt on  $5\frac{1}{2}$ " Perforated Strips and extend with a  $1\frac{1}{2}$ " Flat Girder for the total chassis. The Flat Girder is for the steering and front axle. Bolt on a  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flanged Plate (Flanges on  $2\frac{1}{2}$ " side) with two Angle Brackets for the radiator which acts as the support for the steering. The bonnet module

has a tri-axle for the steering across the top of the bonnet.

The blackish engine is represented by a non-Meccano battery box measuring 70mm high, 47mm long and 20mm thick which is a loose fit inside the bonnet and chassis. (New Zealand and Australian modellers may obtain this battery box from Dick Smith). The 1" Flat Girders on the sides of the chassis are double nutted for removal to allow the battery box to drop out easily. The photographs show the simulated air cleaner, exhaust pipe, gear lever and clutch pedal.

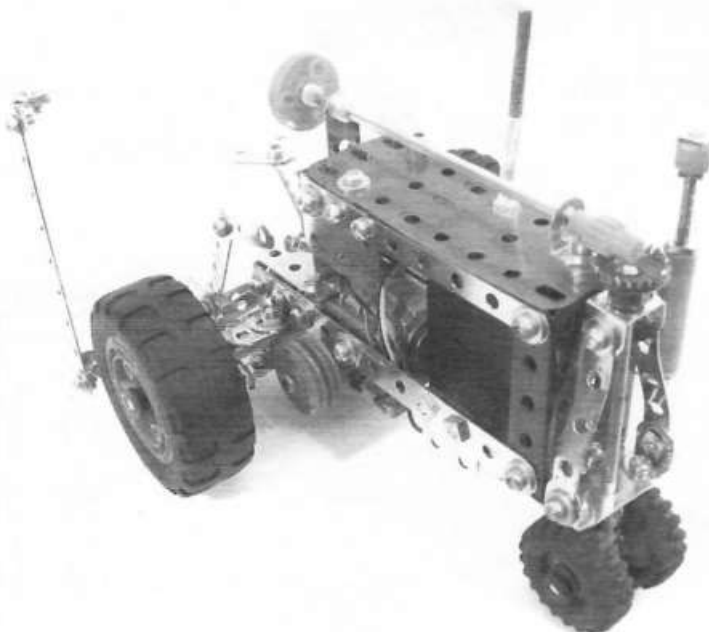
A double pole, double throw, centre off, miniature switch mounted on the dashboard controls the forward, off, and reverse motion direct from the MO Motor.

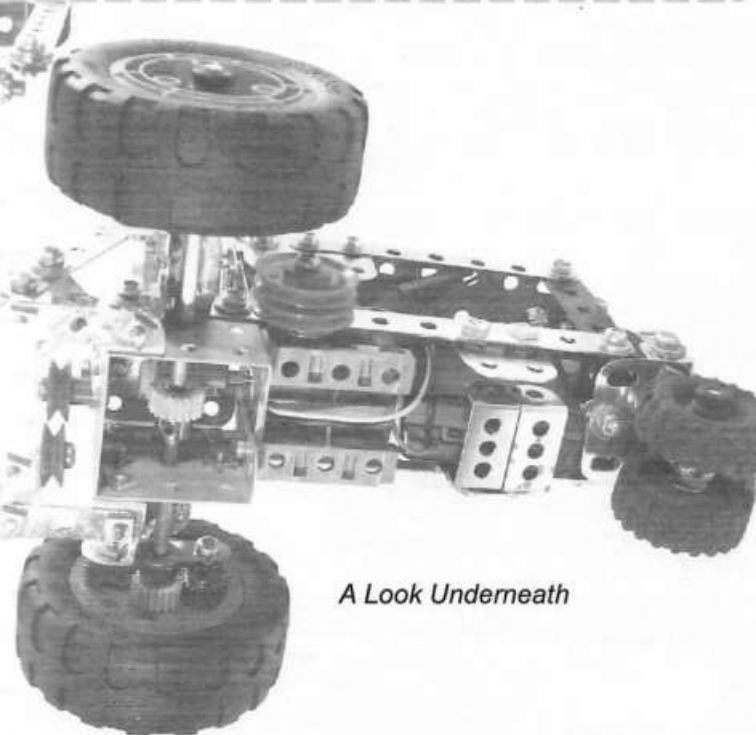
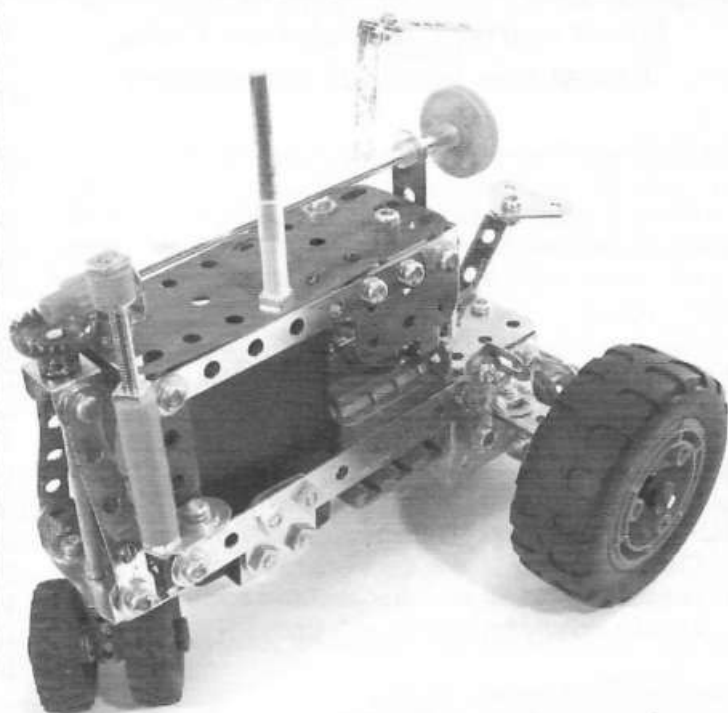
1" Angle Girders are bolted to the reduction



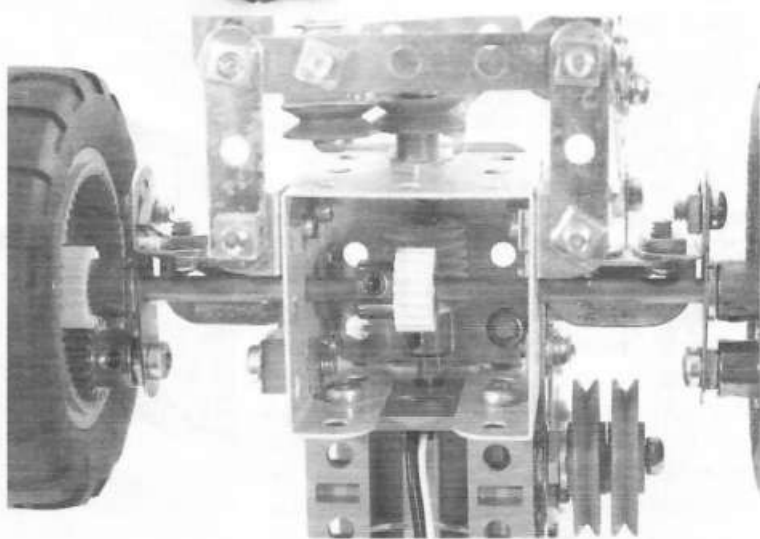
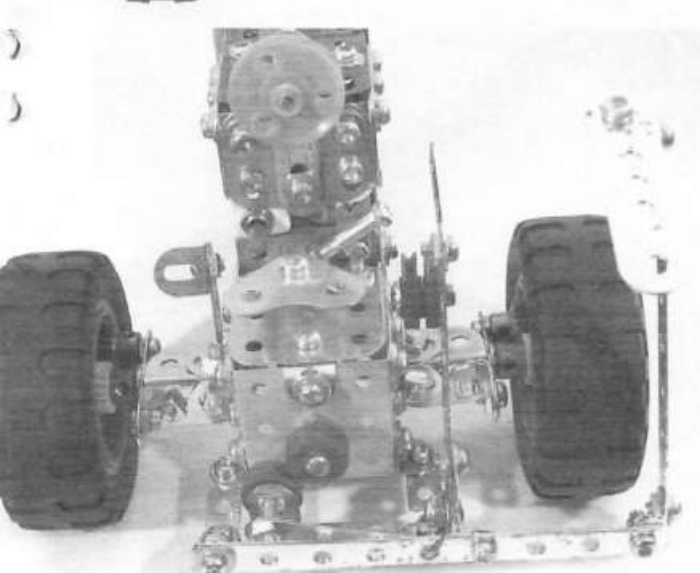
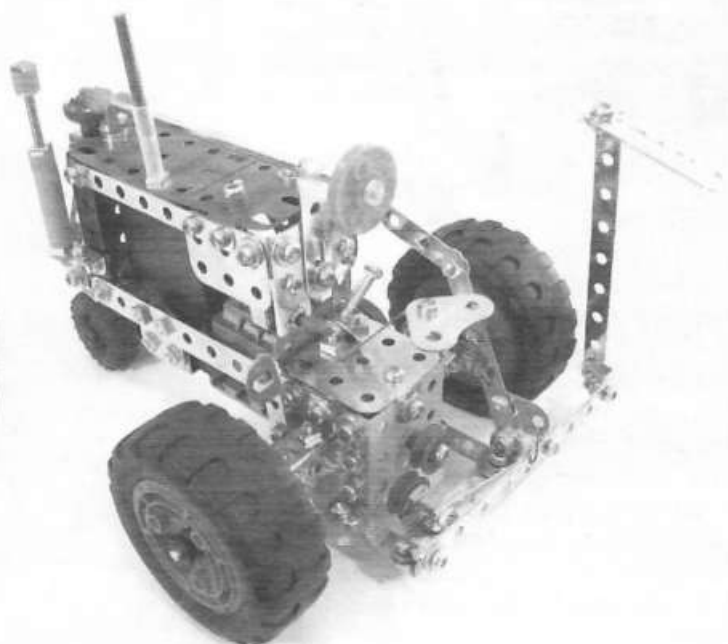
box with Angle Brackets to give a total of four bearings for the  $4\frac{1}{2}$ " Axle. The Worm in the reduction cube drives out to a pinion which meshes via a second pinion to the internal teeth of the back wheels.

Add the drawbar. For the mower accessory, bolt three Angle Brackets to the drawbar and use a 's' shaped copper wire to lift the mower up and down. Use self locking nuts on the swivelling joints.





*A Look Underneath*



*The Final Drive Revealed*

## Frank Hornby, Meccano Ltd and Christmas Product Promotion

by Bruce Neilson

*"A Merry Christmas, uncle! God save you!" cried a cheerful voice. It was the voice of Scrooge's nephew, who came upon him so quickly that this was the first intimation he had of his approach.*

*"Bah!" said Scrooge, "Humbug!"*

From 'A Christmas Carol' by Charles Dickens,

I reckon that Frank Hornby and Meccano Ltd did not like Christmas. How do I come to this conclusion? In the process of searching out material for the December 2001 issue of NZFMM, the editorial team became aware of the paucity of Christmassy material in the Meccano literature. A more organised and deeper search of available sources revealed a lack of empathy for Christmas festivity.

### Meccano Magazine Covers

*"The Meccano Magazine 1916 - 1981"* is Vol. 7 of the Hornby Companion series and is primarily a book of reproduction Meccano Magazine (MM) covers in colour and an Index of all the articles in the Meccano Magazine.

Keeping in mind that Frank Hornby directed Meccano Ltd from 1901 to 1936; a look at all these covers reveals the following:

December 1923 - The first MM cover that has a Christmas flavour with an artistic picture of a bearded Father Christmas flying in a Meccano aeroplane dropping Meccano sets to Meccano boys across the world globe below. This is also the only December cover which is artistic as opposed to a pure photograph.

December 1924 - The words 'Special Christmas Number' added to the top of the cover page but the picture is of a crane hook.

December 1925 - The words 'Special Christmas Issue' added to the bottom of the cover page but the picture is of a locomotive driver in his cab talking down to a small boy.

And then not a mention of Christmas, in word or picture, on the covers for the next 26 years until 1951.

The question must be "Is this all?" Frank Hornby was a very astute user of advertising, production and sales must have been geared to the Christmas period, MM was produced in-house and therefore editorial policy was under Mr Hornby's eagle eye. In addition, MM would have been sold at authorised Meccano dealers and newsagents and circulation peaked at 70,000 copies a

month in 1930. All that exposure available for promotion of Hornby products at the crucial time of the year's sales and never used!

The next group of 'Christmas' covers appeared in the 1950s: December 1951 - A photographic picture of two boys with Dinky vehicles, and their Dad, in front of the fire with half a Christmas tree and the words 'A Happy Christmas'.

December 1952 - A photographic picture of a snowman and two children and the words 'Merry Christmas, Mr Snowman'.

December 1953 - A photographic picture of a conifer trees and two children and the words 'Fun among the Christmas Trees'.

December 1954 - A photographic picture of a six boys looking into a toy shop window full of Meccano products and the words 'The Joys of Christmas'.

December 1955 - A photographic picture of a decorated tree and spectators and the words 'A Railways Holly Tree'.

December 1958 - A photographic picture of a decorated tree and spectators and the words



'Christmas in Trafalgar Square'.

December 1959 - A photographic picture of a nativity scene and spectators.

And that is it. No 'Christmas' words or pictures from 1960 until demise in 1981. MM was published outside Meccano Ltd from 1964 to 1973, and from 1976 to 1981 by when circulation had dropped to 4,000 copies.

Of the 1950s covers, only 1951 and 1954 give any clue that this is a Meccano Ltd publication; and to me, the December 1954 cover gives the strongest message that every boy should have a Meccano Ltd product for Christmas. But this is the one and only time in 65 years of publication!

### Contents of Meccano Magazines

Again using "The Meccano Magazine 1916 - 1981", Vol. 7 of the Hornby Companion series, which has an Index of all the articles in MM, there are **four** articles between 1916 to 1936 which include the word 'Christmas' in the title:

1926 December Page 754 'Holly and Mistletoe. Christmas customs handed down from pre-historic times'.

1927 December Page 1052 'Some Xmas Sea Pranks'.

1927 December Page 1072 'Christmas at Sea'.

1936 December Page 728 'In Search of New Models. Snow scenes for Christmas'.

And then not a mention of Christmas for the next 27 years until 1952.

The only Meccano Ltd product included in these four articles are the simple Meccano models in 1936 and only two of those have a direct Christmas flavour. 'Taking home the Yule log' and the 'Meccano reindeer and sleigh'.

Between 1952 and 1971 there are 31 'Christmas' articles listed in the Index. None of these relate to Meccano Ltd products.

### Models

The Indices of the following books were searched for models which contained the word 'Christmas' or 'Xmas' as part of their title looking for such things as Christmas Tree, Pudding, Wreath, Father, Stocking, Bells, Holly, Carousel, etc.

'The Meccano Magazine 1916 - 1981', Vol. 7 of the Hornby Companion series.

'The Meccanoman's Guide', Section 10 'Review of Instruction Manuals'.

'Encyclopedia of Meccano Manuals', Volume 6 of Don Blakeborough's Encyclopedia.

'Meccano Company Literature', Volume 1 of Bruce Neilson's Indexes.

These books cover all the Outfit Manuals, Special Manuals (New Models, etc.) and other Meccano Ltd company literature. Apart from the two models noted above in the December 1936 Meccano Magazine, the number of models found is **zero**.

I rest my case.

Comment and corrections to the Editor please.

## A Curious Right Angled Drive Without Gears

by George Ovenden

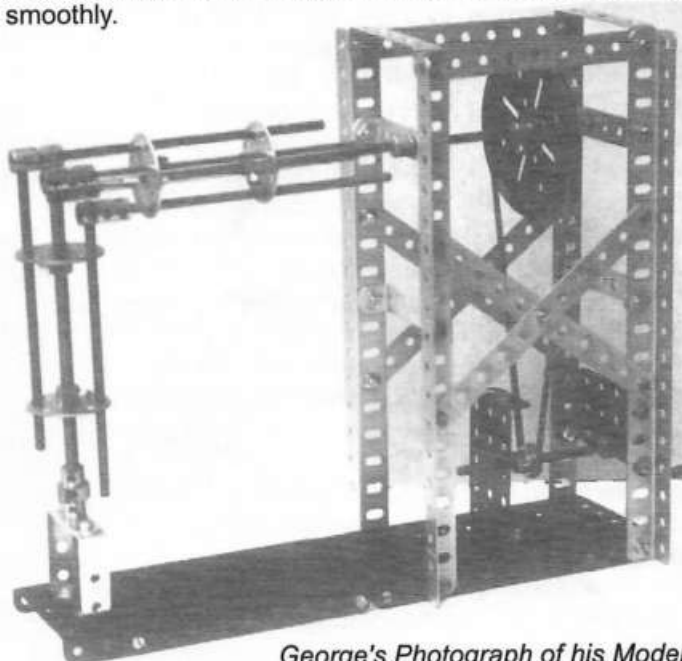
This model appeared in the December 1927 Meccano Magazine, page 1079, courtesy of J. Sant Manducca of Malta. Seeing is believing. I had to build it to believe it could work.

### Construction

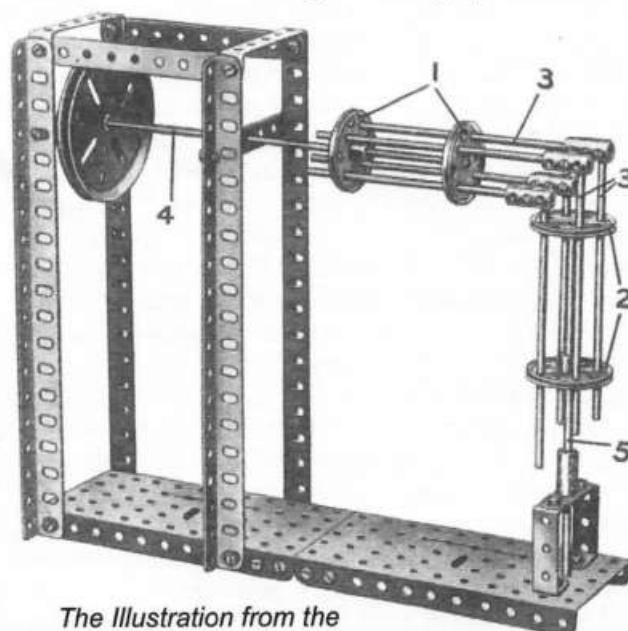
The framework should be clear from the photograph.

The horizontal drive shaft is an 8 1/2" Axle Rod fitted with two 8 hole Bush Wheels spaced 2" apart. Four 5" Axle Rods are threaded through the Bush Wheels and P/N 63 Couplings are fitted to the ends. The vertical shaft is a 6 1/2" Axle Rod fitted with two 8 hole Bush Wheels spaced 2 1/2" apart, and a retaining Collar at the footstep bearing. The sliding vertical Axle Rods are 5" long.

If all moving joints are lightly oiled, the works will turn very smoothly.



George's Photograph of his Model

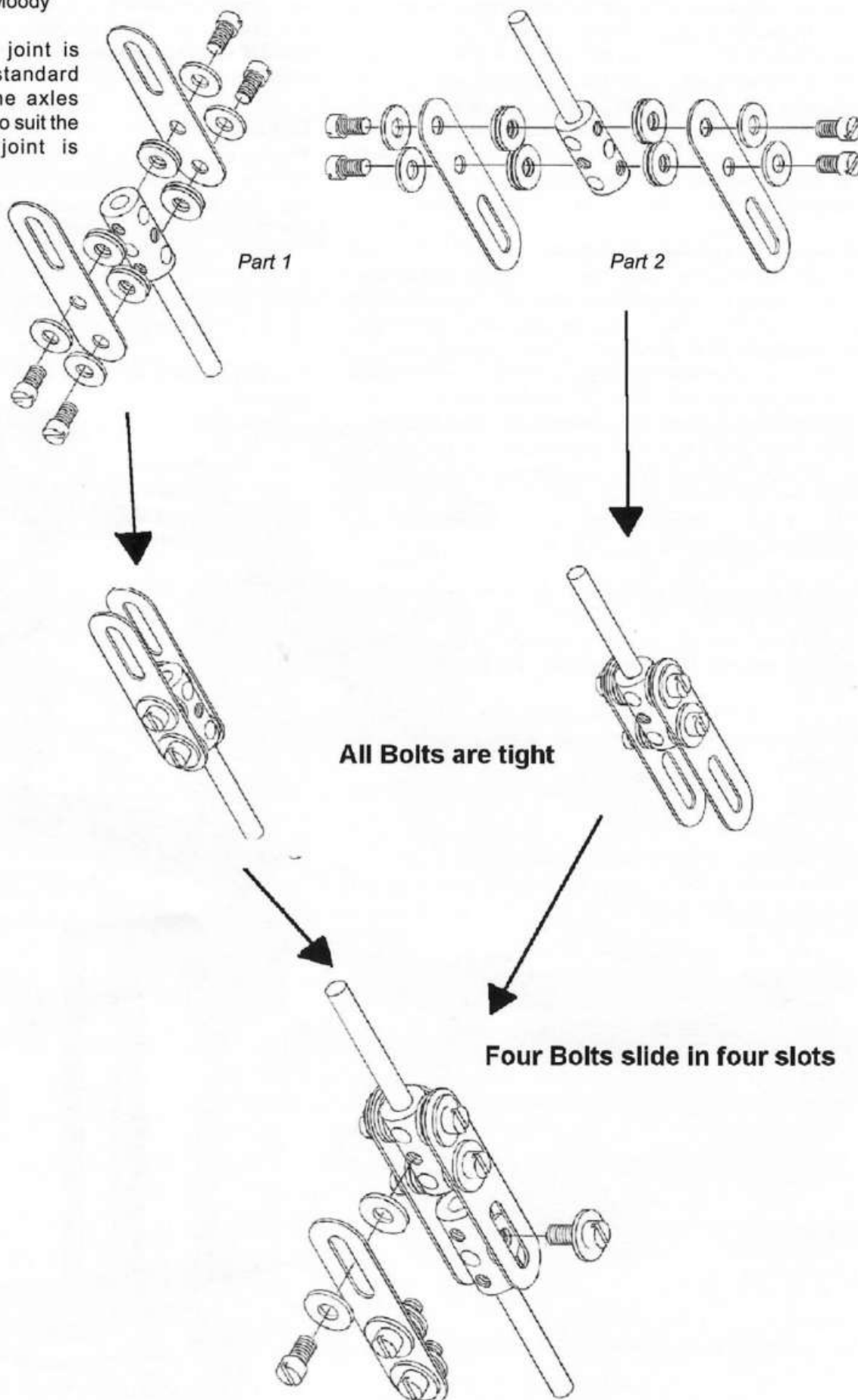


The Illustration from the December 1927 Meccano Magazine

## Heavy Duty Telescopic Transmission Joint

designed by Simon Moody

This transmission joint is constructed from standard Meccano parts. The axles should be of lengths to suit the application. The joint is especially useful for a larger model such as in the drive shaft running between the front and rear sections of an articulated front end loader.



## The Epic Story of a Geared Roller Bearing (GRB)

### What, Where, When, Why and How

text by Chris Morton.

pictures by Bruce Neilson.



**What** – This is about a Meccano Geared Roller Bearing (P/N 167). GRBs were first mentioned in the second half of 1928 in the August edition of the Meccano Magazine which shows this new part incorporated into the Giant Blocksetting Crane. There was a difficulty however, in that this marvellous new part cost one English pound which probably equalled a week's wages. A pound also would have translated into quite a few much more readily useable parts so history tells us that sales of this item were very slow. In 1945 this part, along with a few equally exotic other items, was removed from the Spare Parts Lists, never to be seen again. In fact, production probably ceased prior to World War Two and that was that.

My GRB comprises the following units:- two Roller Races, each 12" diameter and dished to form a rim near their peripheries; one Ring Frame 10" diameter; one Special Pinion 16 teeth; sixteen  $\frac{3}{4}$ " Flanged Wheels; sixteen Pivot Bolts and Nuts; two Bush Wheels; one  $9\frac{1}{2}$ " Perforated Strip; one  $1\frac{1}{2}$ " Axle Rod; and ten Nuts and Bolts. When

assembled, these parts form a complete Roller Bearing. The Roller Races are enamelled grey, except the toothed edges, which are a nickelled finish. The Ring Frame is enamelled grey throughout. The complete item is packed in a blue carton.

**Where** – In Palmerston North quite near to the Lido swimming pool complex.

**When** – 1972 approx.

**Why and How** – These two are fairly intertwined in this piece of history so here goes. In my childhood I had both Meccano and Hornby trains but very little of either. My ten years older brother had Meccano which was carefully guarded from my sticky little fingers and woe betide me if I was caught too near to his outfit.

As time went by, I left home and joined the Royal New Zealand Air Force. The Hornby trains were put aside but the Meccano was dug out after my first year of training and a particular model was rebuilt – but that is another story for another day. The younger of my two sisters asked if I minded whether my nephews played with the Hornby trains when visiting their grandmother in 1967 on a wet day. That was OK by me and I asked the nephews for their opinion, which was that another point and more track would make it possible to go around the back of the station as well as the front. I agreed,

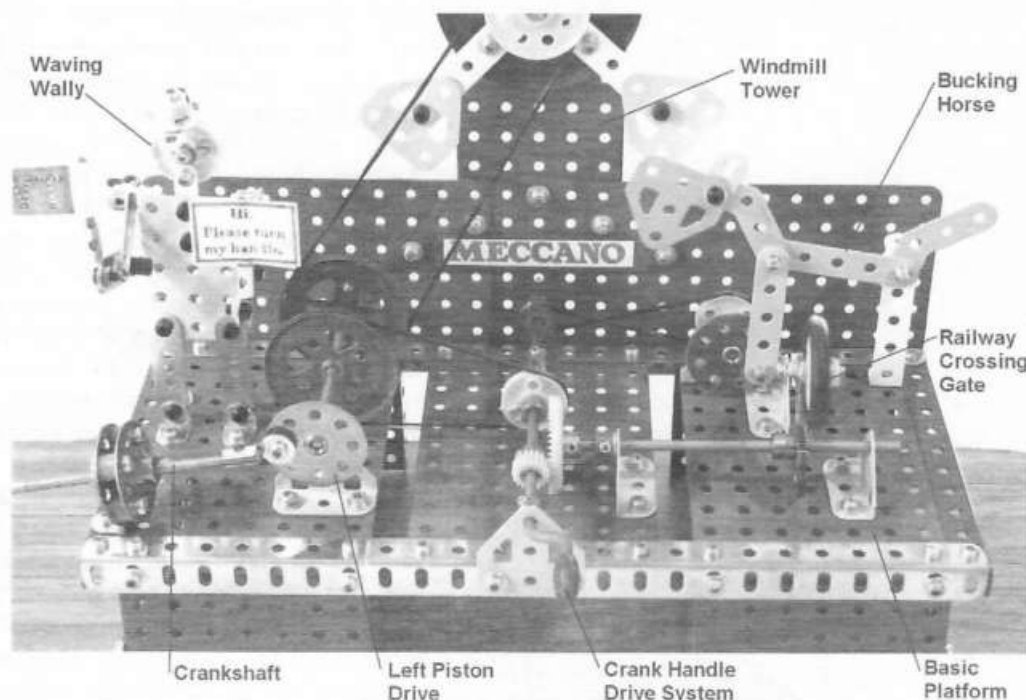
and now being on a wage meant it was now possible to do what couldn't have been done in childhood years. From Corrigan's toy shop in New Plymouth (THE Mecca of my childhood) I purchased another point and more track which more than doubled the set-up. The feedback was some months later when the sister demanded "What did you do to the Hornby?". "Why?" was my reply. She explained that her family had just had a wet day visit to grandmother, and when the nephews went to get out the Hornby trains, they rapidly returned shrieking incoherently "Look what we found!" and physically dragged my mother and sister to see the enlarged collection. That started me looking in the newspaper 'For Sale' columns for more Hornby and one night there was Meccano for sale but no mention of Hornby. I reasoned that normally the two went together, it was a local Palmerston North address, so around I went. No Hornby but the owner asked, "Do you know what Meccano is?". I said "Yes, but it isn't what I had hoped for." He persuaded me to view the Meccano in a homemade wooden cabinet and sitting on top was the Geared Roller Bearing in its blue carton. I admired but left empty-handed. Some nights later in the Corporals' Club bar, there was a telephone number and a request for me to please ring. I obliged although I didn't recognise the number and the message didn't make very much sense. It turned out to be the owner of the Meccano who gently pleaded with me that no-one else had responded to his advertisement and instead of \$35 that he had been asking, would I be willing to pay \$30 and put him out of his misery. I hummed and hawed and then agreed. As the years have gone by, I have come to appreciate what a good bargain it was as there were quite a few other unusual parts in the many drawers of the cabinet.

## ENTERTAINMENT CENTRE

by Bob Prescott

When the Editor asked me to build the Entertainment Centre from three magazine photographs, I looked forward to the task. I think that building a model from photographs without instructions or a parts list gives you the freedom to build it your own way and make it "your" model.

Nick Collette's model was published in "Canadian MeccaNotes" (March 2002). He built it for his grandchildren as a "hands on" model. Once they had learned how to turn the handle they could watch the four (or in the case of my model, *f i v e*) movements. Being a children's model I decided to make it as colourful as possible using zinc, brass, green, red, yellow, black, white, blue and orange Meccano parts.



*What Things are in the Entertainment Centre*

platform and the back plates. It carries a Collar at the Flat Trunnion, a P/N 26 Pinion, a 1" Pulley at the centre and a P/N 23a 1/2" Pulley at the back.

The P/N 26 Pinion above drives a 1 1/2" Contrate on a 5" Axle Rod journalled through two P/N 126 Trunnions at right angles and to the right of the main centre driving axle. From left to right this Axle Rod carries the Contrate, a collar (to keep the Contrate against the driving Pinion), the first Trunnion, a P/N 130a Single Eccentric and the second Trunnion.

The final short axle that drives the bucking horse is a 2 1/2" Axle Rod parallel and to the right of the main centre driving axle. It is journalled through a Trunnion and the back plates and carries a P/N 22 1" Pulley and a P/N 24 B u s h Wheel at its

front.

The left "piston" drive is a 5" Axle Rod running parallel to the main centre driving axle. It is journalled through a P/N

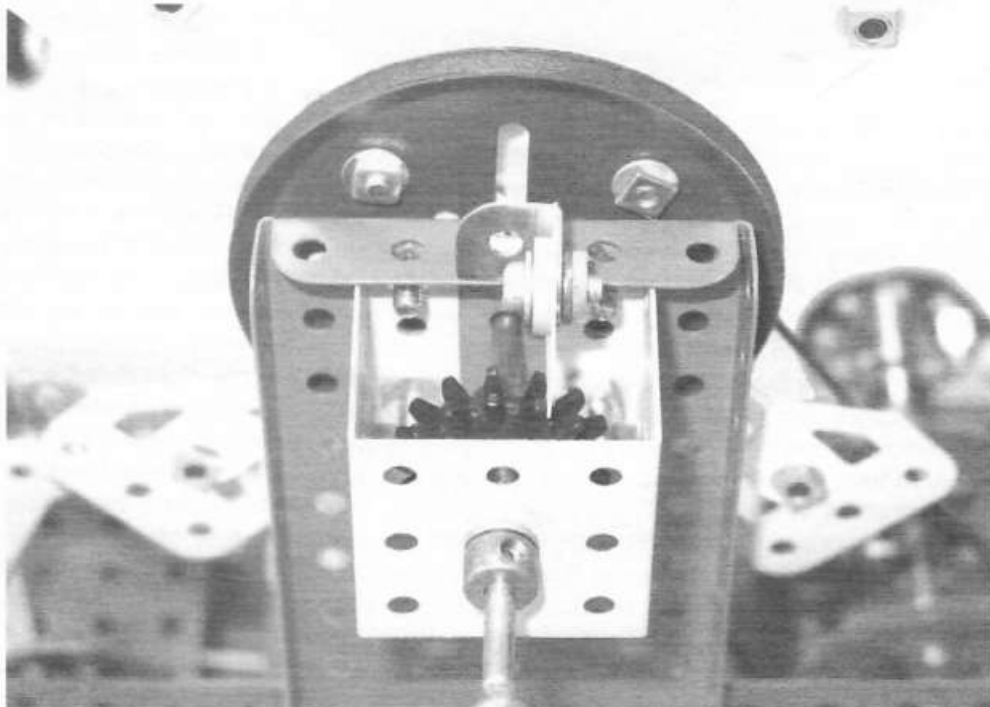
This is how I built my Entertainment Centre:-

### Basic Platform

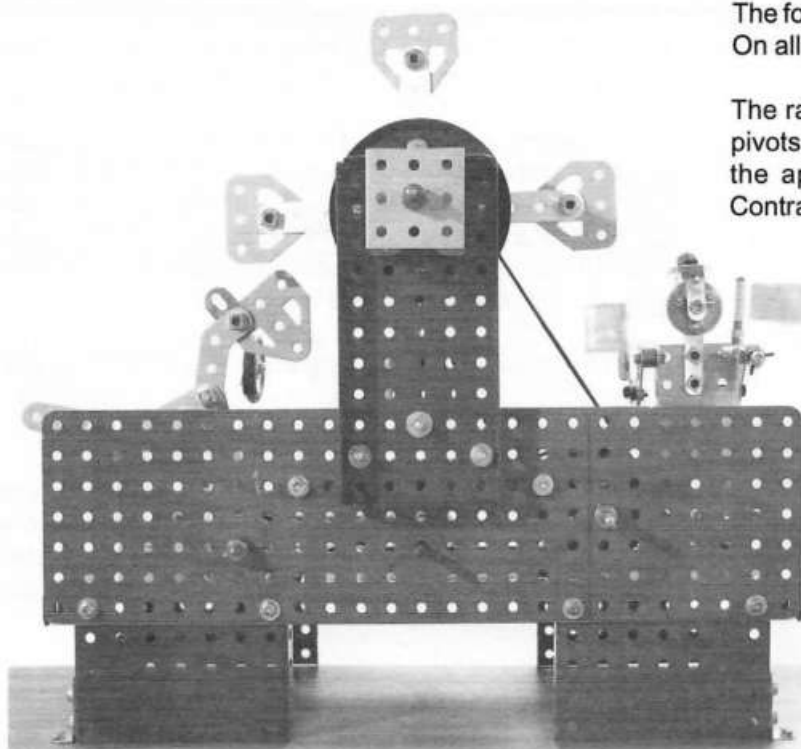
The platform is formed from two 12 1/2" and two 5 1/2" Angle Girders and three 5 1/2" x 3 1/2" Flat Plates, which leaves two 1/2" gaps in the platform. The back is made up of three 5 1/2" x 3 1/2" Flat Plates overlapping four holes. This structure is supported by four 3 1/2" x 2 1/2" flanged plates and the end flanged plates joined by two 5 1/2" flat girders.

### Drive System

The main centre driving axle consists of a 3 1/2" Crank Handle and a 3" Axle Rod joined in the middle by a Coupling (this makes it easy to change the Driving Bands when necessary). This is journalled through a P/N 126a Flat Trunnion at the front of the



*The "Noise Clicker", the Source of that Irritating Noise!*



*A View from Behind*

126 Trunnion, its peak extended by a  $1\frac{1}{2}$ " perforated strip, and the back plates, and carries two 2" Pulleys, a P/N 24 Bush Wheel at its front, and a Collar behind the back plates.

### Moving Features

The windmill tower is a  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate attached behind the back plates overlapping three holes and a P/N 160g Channel Box is attached to the centre top of the Flanged Plate. The windmill vane/sail structure is made up of two  $5\frac{1}{2}$ " Perforated Strips crossed and attached to the boss-less side of a 3" Pulley. Flat Trunnions are attached to the ends of the Perforated Strips. A P/N 21p  $1\frac{1}{2}$ " Pulley is attached to a 3" Axle Rod which is then passed through the 3" Pulley, the Flanged Plate and the Channel Box and secured by a Collar.

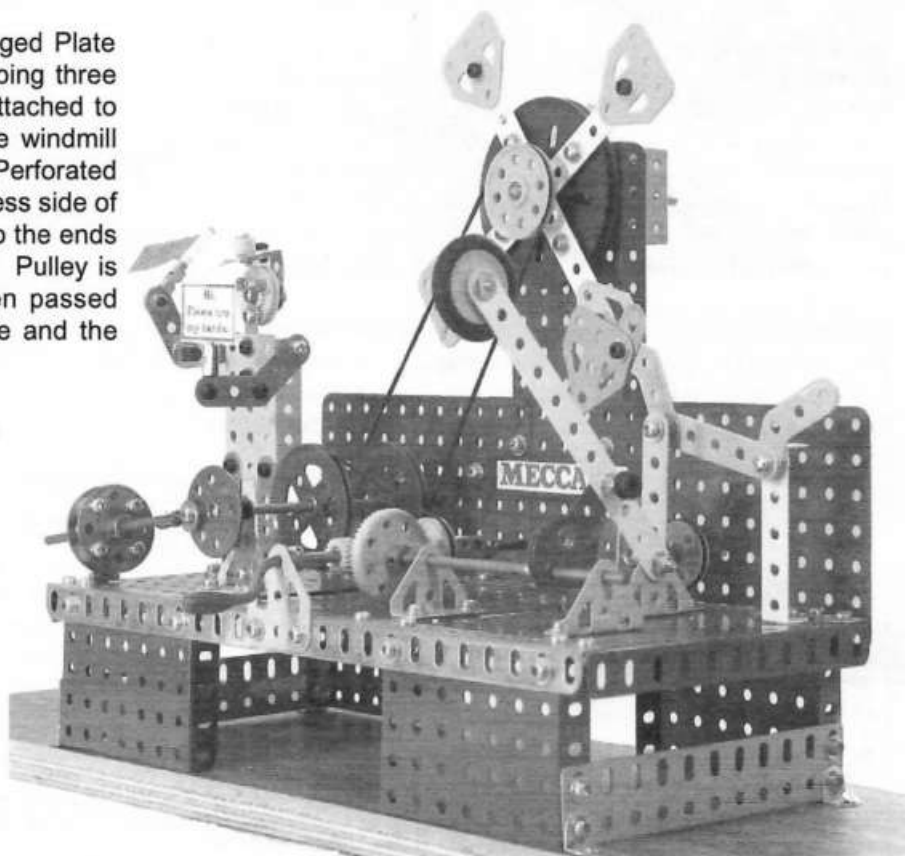
If a "noise clicker" option is required, a P/N 27f Multipurpose Gear is placed on the 3" Axle Rod within the Channel Box and a stiff piece of plastic is secured to a P/N 154b Corner Angle Bracket. This in turn is attached to the centre hole of the windmill tower Flanged Plate with the plastic piece catching against the teeth of the Multipurpose Gear.

The body and front leg of the bucking horse are  $2\frac{1}{2}$ " Perforated Strips, the neck and tail are P/N 133c Obtuse Corner Brackets, the head a Flat Trunnion, the ears a Fishplate and the rear leg a P/N 48a  $2\frac{1}{2}$ " Double Angle Strip which is secured to the platform. I used  $\frac{1}{2}$ " bolts in both the shoulder and rear leg joints. The front leg pivots on the shoulder joint and the rear body and tail pivots on the rear leg Double Angle Strip.

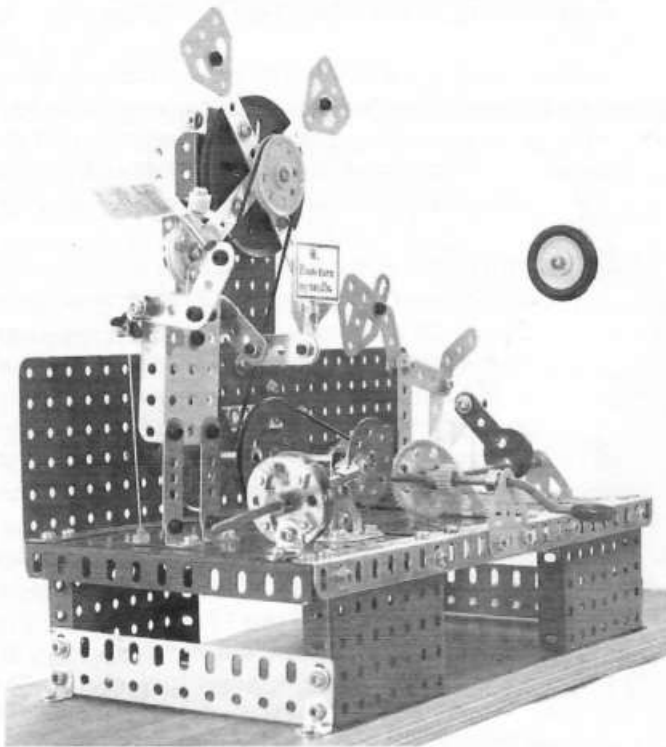
The foot of the front leg pivots on the short axle Bush Wheel. On all the pivoting joints I used P/N 37h Captive Locknuts.

The railway crossing gate is a  $5\frac{1}{2}$ " perforated strip which pivots on the apex of a Trunnion and the fourth hole from the apex is connected to the Single Eccentric on the Contrate Axle. A P/N 22ap 1" Pulley with a P/N 155 Flexible Ring is attached to the upper end of the gate.

The piston in the crankshaft is a  $3\frac{1}{2}$ " Axle Rod positioned in a P/N 212 Rod and Strip Connector which pivots on the front Bush Wheel on the piston driving Axle Rod. The crankshaft is made up of two Bush Wheels spaced apart by four P/N 38a Washer Plastic Spacers. This is connected to the platform frame on a P/N 114 Hinge to give the required rocking motion. Waving Wally's body is a  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flanged Plate, his legs 2" Perforated Strips and his feet two Angle Brackets secured to the platform. Each arm consists of two  $1\frac{1}{2}$ " Perforated Strips bent at the elbow. The left arm is fixed to the body with a collar spaced between it. The moving right arm pivots on the body with a  $\frac{3}{4}$ " bolt passing through the arm, a collar (which has a  $\frac{1}{2}$ " bolt in its boss), a tightened nut, the body and a P/N 37h Captive Locknut. A P/N 59a Mini Rubber Cap is placed on the inside of the elbow nut to prevent knocking on the body Flanged Plate. A P/N 212 Rod and Strip Connector representing Wally's hand is attached to each arm, the left with a  $1\frac{1}{2}$ "



Axle Rod and sign saying "Hi, Please Turn my Handle" and the right with a flag on a  $1\frac{1}{2}$ " Axle Rod.



driving axle and a 10" Driving Band between the piston driving axle and the 1 1/2" windmill pulley.

I didn't bother with the magic motor option - as a "hands on" model I think we need to encourage children to make it work by turning the handle, although an electric motor could be used for a display model. With that in mind the model needs to be attached to a sturdy base board and I did this with four Angle Brackets and wood screws.

Once constructed you will note that it is a tight fit between the bucking horse foot and railway crossing gate base and the eccentric and the platform, but fit they do - just!

Thank you Nick Collette for producing an excellent "hands on" children's model which could easily be modified to include other movements and it will be available for "children testing" at the 2003 Convention at Hawera, New Zealand and for the bigger kids too - try it!

His head is a P/N 22p Pulley which is connected to the body with a 1 1/2" Narrow Perforated Strip and his hat consists of a P/N 187q Hub Cap, a 1 1/2" Narrow Perforated Strip and a Plastic Spacer. This is connected to the head using a P/N 812b Narrow Angle Bracket screwed to the boss of the head Pulley.

Wally's right arm is raised with a string which runs from the 1/2" Bolt in the arm's collar underneath the platform to the railway crossing gate Single Eccentric bolt. The string loop is held in place with a P/N 23c Grommet. To prevent string wear as the string passes through the platform Flat Plates I passed the string through two P/N 184g Antenna Holders which have been drilled completely through and held in place on the Flat Plates by P/N 59b Mini Clear Spacers.

Now is the time to loop the three Driving Bands over the axles and pulleys and line up the pulleys. I used 6" Driving Bands between the main centre driving axle and the bucking horse pulley and between the driving axle and the piston

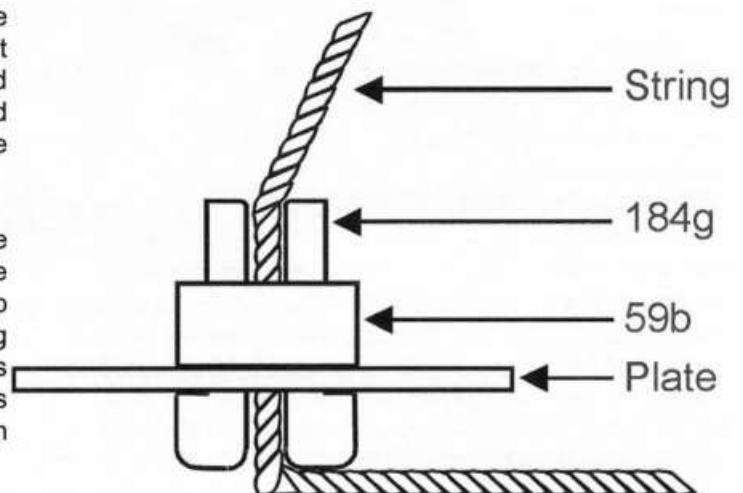


Diagram Showing How the String Passes Through the Base Plate

## The Parts List

(nuts, bolts and washers not counted)

| Part | Description            | Size          | Qty | Part | Description                      | Size            | Qty | Part | Description               | Size                     | Qty |
|------|------------------------|---------------|-----|------|----------------------------------|-----------------|-----|------|---------------------------|--------------------------|-----|
| 2    | Perforated Strip       | 5 1/2"        | 3   | 22p  | Pulley Plastic Bossed            | 1"              | 3   | 103  | Flat Girder               | 5 1/2"                   | 2   |
| 5    | Perforated Strip       | 2 1/2"        | 4   | 23a  | Pulley Metal Bossed              | 1/2"            | 1   | 114  | Hinge                     |                          | 1   |
| 6    | Perforated Strip       | 2"            | 2   | 23c  | Pulley Plastic No Boss (Grommet) | 1/4"            | 1   | 126  | Trunnion                  |                          | 4   |
| 6a   | Perforated Strip       | 1 1/2"        | 6   | 24   | Bush Wheel                       | 1 1/8"          | 4   | 126a | Flat Trunnion             |                          | 6   |
| 8    | Angle Girder           | 12 1/2"       | 2   | 26p  | Pinion Plastic 19t               | 1/2"            | 1   | 130a | Single Eccentric          |                          | 1   |
| 9    | Angle Girder           | 5 1/2"        | 2   | 27f  | Multi-purpose Gear Wheel         |                 | 1   | 133c | Corner Bracket Obtuse     | 1 1/2" x 1"              | 2   |
| 10   | Fishplate              |               | 1   | 28p  | Contrate Plastic                 | 1 1/2"          | 1   | 154b | Corner Angle Bracket      | 1/2"                     | 1   |
| 12   | Angle Bracket          | 1/2" x 1 1/2" | 6   | 37h  | Captive Locknut                  |                 | 7   | 155  | Flexible Ring             | 1"                       | 1   |
| 15   | Axle Rod               | 5"            | 2   | 38a  | Washer Plastic Spacer            |                 | 5   | 160g | Gearbox Casing            | 1 1/2" x 1 1/2" x 1 1/2" | 1   |
| 16   | Axle Rod               | 3 1/2"        | 2   | 48a  | Double Angle Strip               | 2 1/2" x 1 1/2" | 1   | 184g | Antenna Holder            |                          | 2   |
| 16a  | Axle Rod               | 2 1/2"        | 1   | 51f  | Flanged Plate                    | 1 1/2" x 2 1/2" | 1   | 186a | Driving Band              | 6"                       | 2   |
| 16b  | Axle Rod               | 3"            | 1   | 52   | Flanged Plate                    | 5 1/2" x 2 1/2" | 1   | 186b | Driving Band              | 10"                      | 1   |
| 18a  | Axle Rod               | 1 1/2"        | 2   | 52a  | Flat Plate                       | 5 1/2" x 3 1/2" | 6   | 187q | Hub Cap - 5 Hole for 331n |                          | 1   |
| 19b  | Pulley                 | 3"            | 1   | 53   | Flanged Plate                    | 3 1/2" x 2 1/2" | 4   | 212  | Rod and Strip Connector   |                          | 3   |
| 19s  | Crank Handle           | 3 1/2"        | 1   | 59   | Collar                           |                 | 5   | 235g | Narrow Strip              | 1 1/2"                   | 2   |
| 20a  | Pulley                 | 2"            | 1   | 59a  | Mini Rubber Cap                  |                 | 1   | 812b | Narrow Angle Bracket      | 1" x 1 1/2"              | 1   |
| 21p  | Pulley Plastic Bushed  | 1 1/2"        | 1   | 59b  | Mini Spacer                      |                 | 2   |      |                           |                          |     |
| 22ap | Pulley Plastic No Boss | 1"            | 1   | 63   | Coupling                         |                 | 1   |      |                           |                          |     |

## Hayter Rotary Lawnmower

design and text by Chris Morton  
pictures by Bruce Neilson

### The Prototype

A machine that would be loved by NZ Occupational Safety and Health (OSH) watchdogs for its ability to convert small objects such as gladioli bulbs into almost lethal missiles with a range of about forty feet.

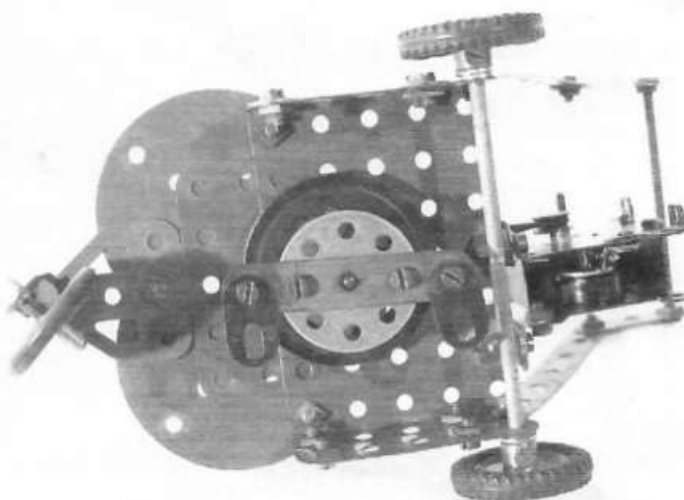
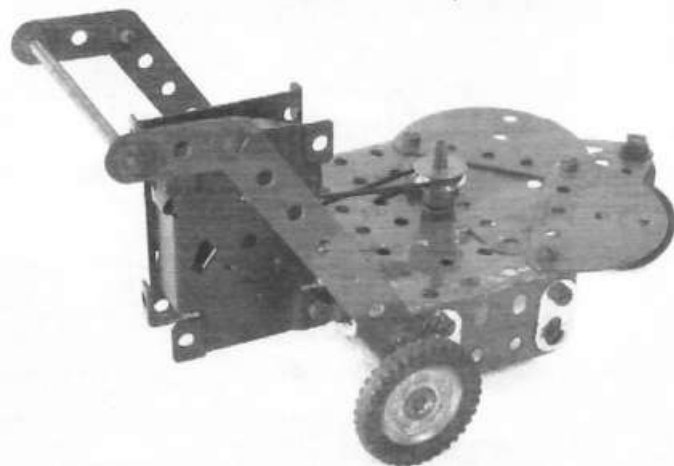
This mower was in the first generation of rotary blade grass cutters. The mowers were for large lawns at schools and parks and very basic in design. A metal square had four swivelling

mower blades bolted on and centrifugal force swung the blades out. The power for the 26" cut came from a Mk 12 Villiers petrol motor.



### Comments on Construction

A simple model with the photos explaining all. The front jockey wheel is lock-nutted to give variable steering. The tips of the cutting blade have lock-nutted fishplates which swing out with the centrifugal force as per the prototype.



I, as a ten year old in Standard 3, was allowed (with parent's written permission) to push this lethal weapon around the school grounds.

Chris Morton



### Parts List

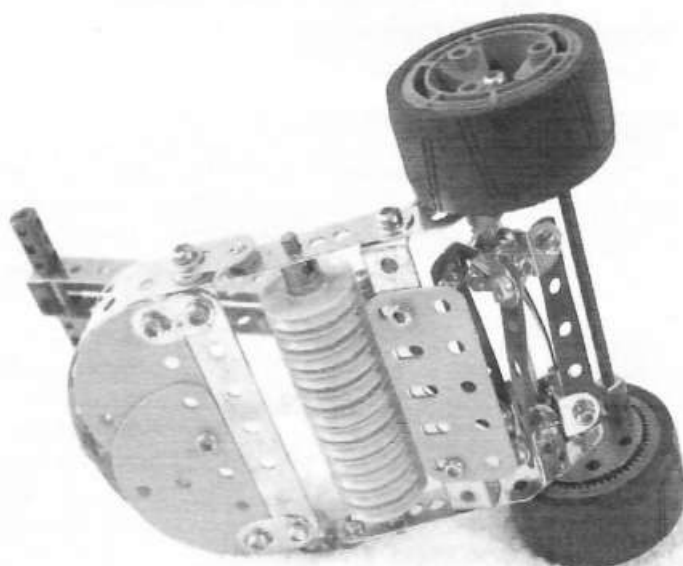
| Part | Description      | Size        | Qty | Part | Description        | Size            | Qty | Part | Description         | Size            | Qty |
|------|------------------|-------------|-----|------|--------------------|-----------------|-----|------|---------------------|-----------------|-----|
| 3    | Perforated Strip | 3 1/2"      | 2   | 22a  | Pulley             | 1"              | 1   | 80c  | Screwed Rod         | 3"              | 1   |
| 5    | Perforated Strip | 2 1/2"      | 3   | 23a  | Pulley with Boss   | 1/2"            | 1   | 111c | Bolt                | 3/8"            | 1   |
| 6b   | Perforated Strip | 1 1/2"      | 2   | 24   | Bush Wheel         | 1 3/8"          | 1   | 126a | Flat Trunnion       |                 | 1   |
| 10   | Fishplate        |             | 6   | 35   | Spring Clip        |                 | 1   | 142c | Motor Tyre          | 1"              | 2   |
| 12   | Angle Bracket    | 1/2" x 1/2" | 2   | 37b  | Bolts              |                 | 26  | 155  | Rubber Ring         | 1"              | 1   |
| 15a  | Axle Rod         | 4 1/2"      | 1   | 37c  | Nuts               |                 | 35  | 188  | Flexible Plate      | 1 1/2" x 1 1/2" | 1   |
| 17   | Axle Rod         | 2"          | 1   | 38   | Washer             |                 | 10  | 214  | Semi Circular Plate |                 | 2   |
| 18b  | Axle Rod         | 1"          | 1   | 44   | Bent Strip Stepped |                 | 1   |      | Magic Motor         |                 | 1   |
| 20a  | Pulley           | 2"          | 1   | 53   | Flanged Plate      | 3 1/2" x 2 1/2" | 1   |      | Driving Band        | 1 5/8" D        | 1   |
| 22   | Pulley with Boss | 1"          | 2   | 59   | Collar             |                 | 1   |      |                     |                 |     |

## Masport Hand Lawnmower

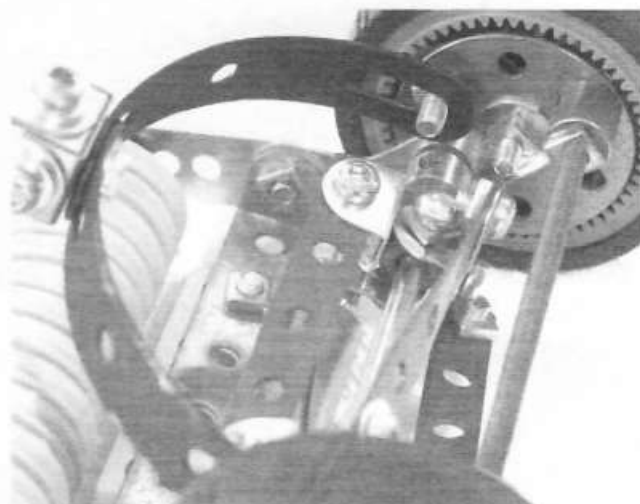
designed by Bruce Geange  
text and Pictures by Bruce Neilson

Many a Meccanoman will remember this machine from their youth when it was part of their weekly chores. Normally blunt and out of set, the hand lawnmower built body muscle in the heat of summer and the freeze of winter.

The model replicates all the essential movements of the prototype right through to the use of geared hubs in the driving wheels. Parts from the sets 20/30/40/50 of the late 1990s are required.

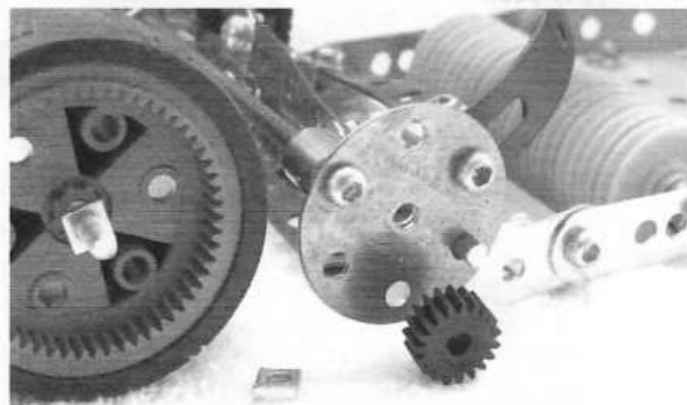
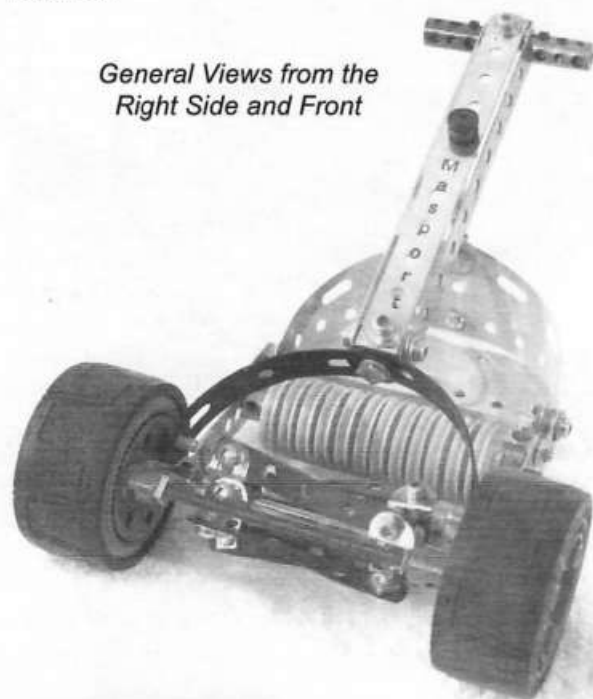


*A Look Underneath*

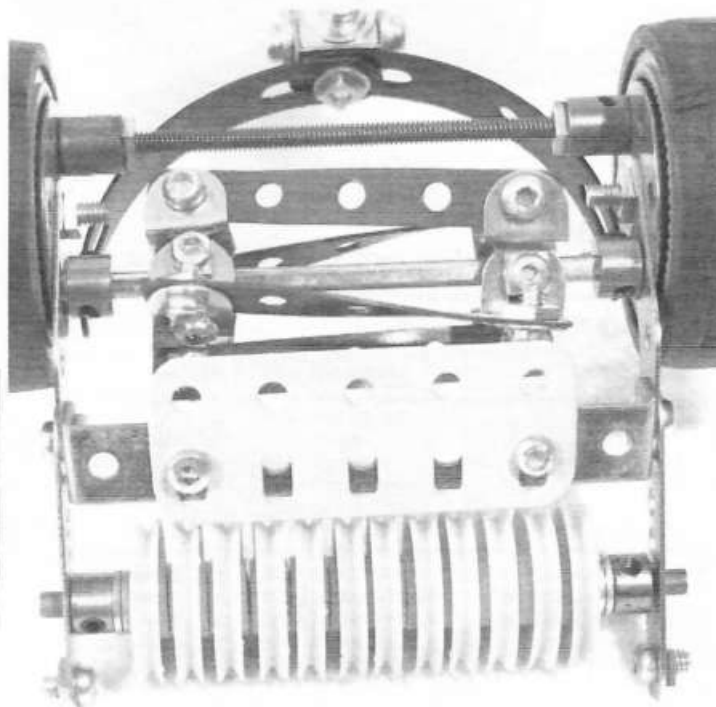


*This is how the Blades are Fixed*

*General Views from the Right Side and Front*



*The Geared Wheel Hub Exposed*



*The Underside View Shows the Roller, Blades and Cutting Plate*

## Another Masport Hand Lawnmower

designed by Alistair Tong  
text and Pictures by Bruce Neilson

The diversity of thinking never fails to amaze. From the same Domestic Lawnmower competition comes this different Masport Hand Lawnmower. Using the parts from the 1950s to 1970s,

the  
challenge of  
driving the blades  
from the wheels has been  
solved by external pinions

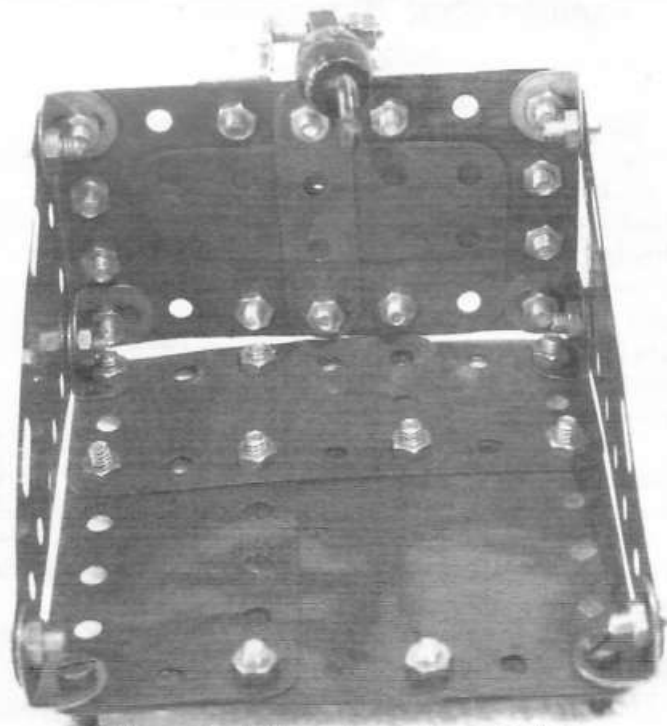
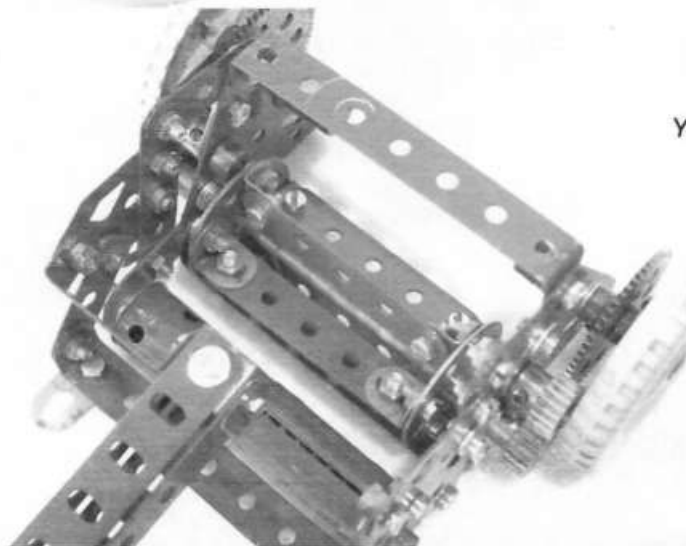
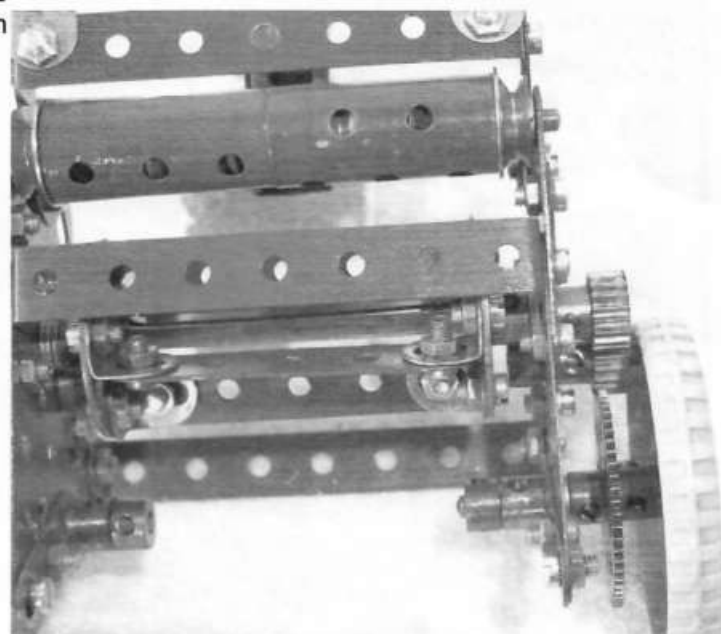
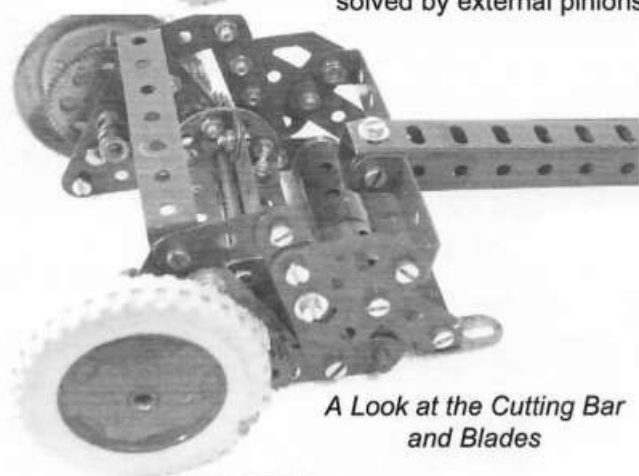
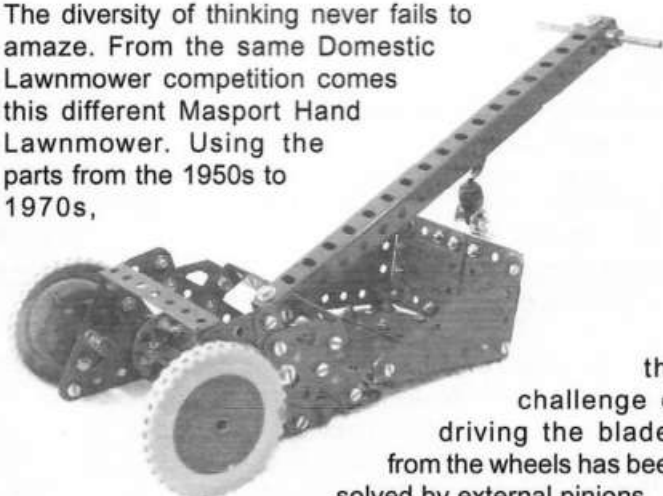
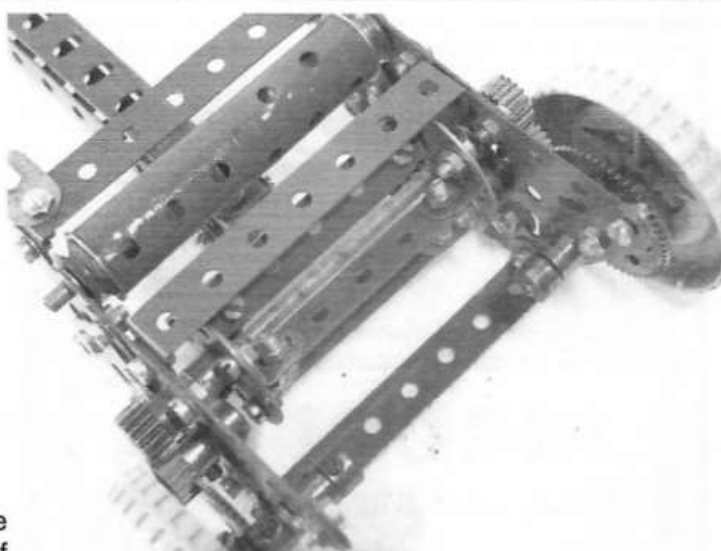
*Another View of the Underside*

*A Look at the Cutting Bar  
and Blades*

*Yet Another View Underneath - This is What the Grass Sees!*

*How the Gears are Fitted to Drive the Blades*

*Every Good Mower has a Grass Catcher*



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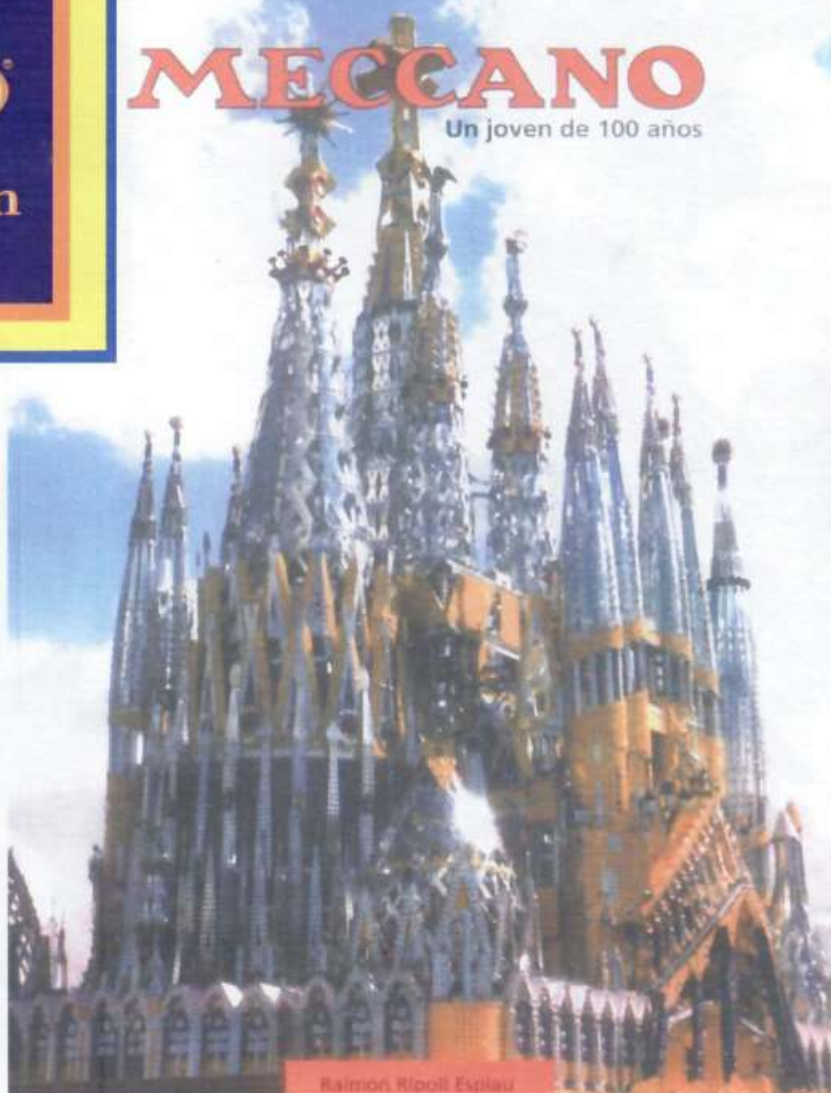
## MECCANO un joven de 100 años

*Meccano un joven de 100 años* is a superb book published by the La Peña del Cargolet, the local Meccano Club, of Barcelona, Spain, to celebrate the one hundred years of Meccano. The author is Raimon Ripoll Espiau; he has selected examples of Meccano products from each of the 100 years, described them and included colour illustrations. This is a landmark publication and, although the text is in the Catalan dialect of Spanish, many of the illustrations are of English language products. The balance is, however, maintained with some French and some Spanish language books and boxes.

The last few pages list Meccano Clubs from around the world. The front cover features a fine photograph of the Meccano model of the Sagrada Familia, the famous Gaudi cathedral still under construction in Barcelona. Such is the detail of this model that at first glance one can easily make the mistake of thinking that the actual cathedral is pictured. The model, built by Frenchman Luis Fleck, must have required a truck load of Meccano!

A copy of this book is held by John Ince. Enquiries concerning the purchase of further copies are in hand.

**MECCANO**  
Un joven de 100 años



Raimon Ripoll Espiau