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ABC

FRONT COVER

The Duke of Edinburgh arrives at Hendon in a helicopter of the Queen's Flight to have a look at progress on the R.A.F. Museum, which will be officially opened by Her Majesty the Queen on November 15. First public day will be November 17. *(Photo Leslie Hunt).*

NEXT MONTH

Articles on the Inland Waterways, tree transplanting, and sand-blasting are three of next month's features.

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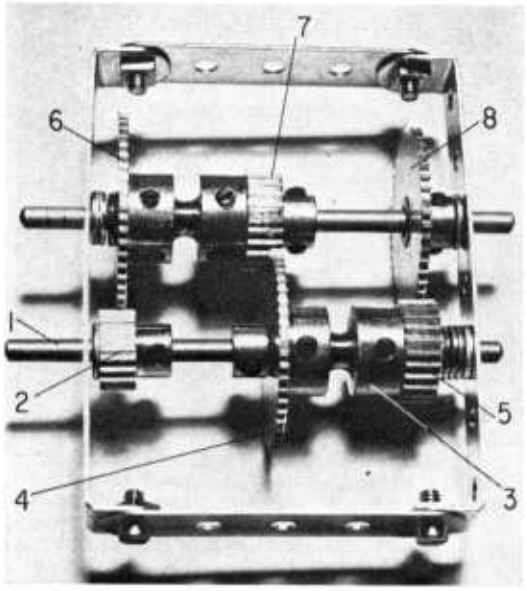
13-35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTFORDSHIRE



A remarkably compact triple-train Reduction Gearbox designed by Mr. Dennis Adams of Nairobi, Kenya.

Among the Model-Builders

with 'Spanner'

I RECENTLY mentioned in these pages that Cranes were among the most popular subjects for Meccano model-builders and this is undoubtedly true. Cranes, however, do not represent the only popular subject as any experienced modeller would take pains to point out. Probably equal in importance are road vehicles—cars, buses, lorries, etc.—and, in fact, because of the very wide variety of different prototypes in existence, there is strong evidence to suggest that such models are even more popular than Cranes.

If this is so, then one of the major reasons for it is that working reproductions of virtually all the mechanical features of the typical motor vehicle chassis can be produced in Meccano. Steering, brakes, gearbox, clutch, differential—all can be made and, indeed, literally scores of different examples have been featured in the M.M. over the years. Despite this large quantity, however, we have never once (to my knowledge) been accused of hammering the subject by readers and it is therefore reasonable to assume that motor chassis mechanisms are of interest to the majority of readers.

This brings me nicely to our first two contributed items this month—a Clutch Unit and appropriate Control Pedal, both designed by Mr. E. R. W. Schoolar of Tunbridge Wells, Kent. Referring to the Clutch, Mr. Schoolar says," I have found that the majority of friction clutches waste much of the available power due to friction in the wrong places and I have made several attempts to reduce this, resulting in this simple compact design. While still an effective friction clutch, it does not waste very much power through unwanted friction when engaged and takes very little power when disengaged."

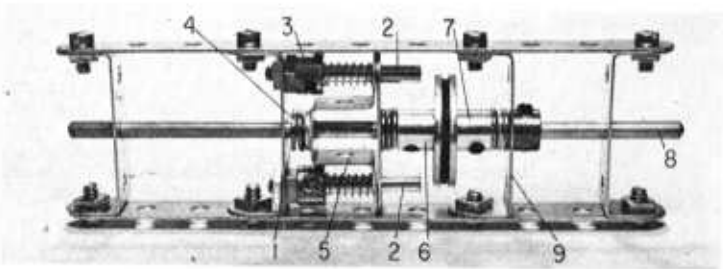
Secured to one of the input shaft supports 1 (represented on our demonstration unit by a $1\frac{1}{2} \times \frac{1}{2}$ in. Double Angle Strip) are two Long Threaded Pins 2, one each side of the shaft. A spacing Collar 3 and a Compression Spring are added to each Pin, while three spacing Washers 4 are added to the centre input shaft, then a Double Bent Strip 5 and a $1\frac{1}{2}$ in. Strip are mounted as shown on both Pins. Further spacing Washers are added to the input shaft, then an electrical 1 in. Bush Wheel 6 is fixed on the shaft, with approximately $\frac{1}{16}$ in. of shaft protruding through the boss of this Bush Wheel. A $2\frac{1}{2}$ in. Driving Band is added to provide the friction "plate", then the protruding Rod end is inserted part-way into the boss of a second electrical 1 in. Bush Wheel 7, fixed on the output shaft 8 which is held by a Collar in mountings supplied in our demonstration unit by further $1\frac{1}{2} \times \frac{1}{2}$ in. Double Angle Strips 9. In operational use, of course, the supports for both the input and output shafts would depend on the construction of the parent model. The two sections of the Clutch should be so arranged that the compression of the Springs allows a movement of approximately $\frac{1}{16}$ in.

PARTS REQUIRED

2—2	8—37a	1—45	2—120b
1—6a	8—37b	4—48	1—186
1—16	9—38	4—59	
1—17	1—38d	2—115a	
Electrical Parts		2—518	

Clutch Pedal

To disengage the drive in the Clutch described above, Double Bent Strip 5 is moved against the pressure of Compression Springs 3 and, as Mr. Schoolar says, this may conveniently be achieved by a simple clutch pedal, built up from a Small Fork Piece 10 attached by a $\frac{1}{2}$ in. Bolt to a suitable vertical support. A Crank 11 is held in the lugs of the Fork Piece by two $\frac{7}{32}$ in. Grub Screws which also secure a 1 in. Rod in the boss of the Crank. Fixed on



A compact and extremely effective Clutch Unit designed by E. R. W. Schoolar of Tunbridge Wells, Kent.

this Rod is a second Small Fork Piece 12, the lugs of which should be located astride the clutch input shaft in the "box" formed by Double Bent Strip 5 and the 1½ in. Strip. When the arm of Crank 11 is pressed down, the clutch is disengaged.

PARTS REQUIRED		
1—18b	1—62	1—111a
1—37a	2—69b	2—116a

Reduction Gearbox

Moving away from motor chassis mechanisms, we come next to a very compact reduction gearbox designed by 15 year-old Dennis Adams of Nairobi in Kenya. I found this particularly interesting as it illustrates extremely well a method of condensing a triple-ratio gear train into a small space by using only two supporting Rods.

Fixed on the input shaft 1 is a ½ in. Pinion 2, while free to revolve on the shaft is a Socket Coupling 3 which carries a 50-teeth Gear Wheel 4 in one end and a ½ in. Pinion 5 in the other end. A Collar prevents the assembly from sliding on the Rod. A second free-running Socket Coupling, carrying a 57-teeth Gear Wheel 6 and a ½ in. Pinion 7, is mounted on the output shaft, this assembly also being prevented from sliding by a Collar, while a 50-teeth Gear Wheel 8 is fixed on the shaft. Pinion 2 meshes with Gear 6, Pinion 7 with Gear 4 and Pinion 5 with Gear 8, all these between them giving ratios of 3:1 × 2:1 × 2:1 to result in a total reduction of 12:1. As Dennis points out, however, any combination of suitable Pinions and Gear Wheels could be used to give alternative ratios and the number of gear trains employed could be increased almost indefinitely. A very useful principle, Dennis.

PARTS REQUIRED			
2—5	1—26	4—37a	2—48b
2—16	2—27	4—37b	2—59
2—25	1—27a	10—38	2—171

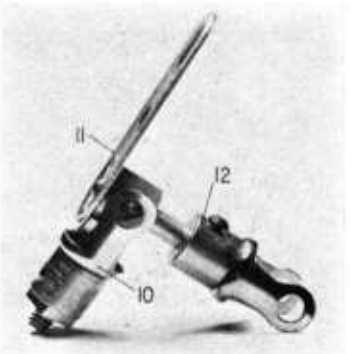
This simple Clutch Pedal has also been designed by Mr. Schoolar for use with his Clutch Unit.

Heavy-Duty Lorry

I would like to stay with Dennis Adams a little longer, now, to mention the rather appealing heavy-duty Lorry featured in the two accompanying photographs. At the time of writing, it is Dennis's latest construction, being a freelance design based on the Bedford 8-ton lorry with dropside body. The general lines are good and there is plenty of mechanical detail as Dennis's own description makes clear.

"Initial drive", he writes, "is by Sprocket and Chain and Worm reduction gearing from a Motor with Gearbox, set in the 60:1 ratio. The clutch (not visible in the photos) is built from two 1½ in. Contrate Wheels, held together by a Compression Spring, the pressure plate driving a 4 in. Keyway Rod which forms the gearbox input shaft. A ½ in. and a ½ in. Pinion, held in a Socket Coupling, are free to slide on the shaft, but are obliged to revolve by Keyway Bolts. Gear-selection is by the normal fork arrangement, neutral being held by a spring-loaded pin engaging the groove in a ½ in. Pulley on the selector Rod. When the input gears are in neutral, reverse can be engaged by swinging up an arm on which a 50-teeth Gear is mounted, this Gear meshing constantly with a ½ in. Pinion on the output shaft. The Gear can also mesh with the ½ in. Pinion on the input shaft to result in a 19:50:25 ratio in reverse. Forward ratios are 1:2 or 1:3, achieved by meshing the above-mentioned Pinions with their respective Gears.

Mr. Adams of Nairobi is also the builder of this modern-looking "freelance" lorry based on a Bedford 8-tonner.



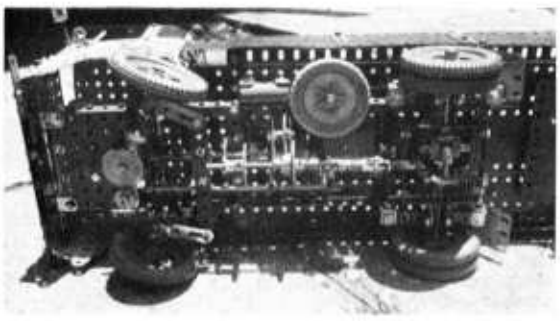
"The working differential is similar to that in the October 1970 M.M. and the differential cage is bolted to working leaf springs. At the other end of the chassis, the steering operates through a 2:1 ratio, with the steering arms being set at an angle to the hubs."

Dennis tells me that his parents persuaded him to send along the details of his model and I am pleased they did so. The model was well worth featuring.

Reaching Awkward Places

I just have time now to pass on an idea from Mr. Peter Brown of the Stevenage Meccano Club on a way of getting Bolts to difficult spots in models which cannot be easily reached by hand. Simply use the Nut Runner from the Meccano Super Tool Set! Load the Runner with a Bolt, sliding the head of the Bolt under the lips of the open side, with the Bolt shank projecting out through the space between the lips. Fit a Nut in the end of the Runner to hold the Bolt in, then locate the Bolt in its required position. Once in place, add a Nut to the Bolt to hold it in position, then release the Nut from the Runner which will allow the Bolt to come free. It's a remarkably simple idea—yet effective!

My apologies go to Mr. Brown for holding on to his idea for so long.



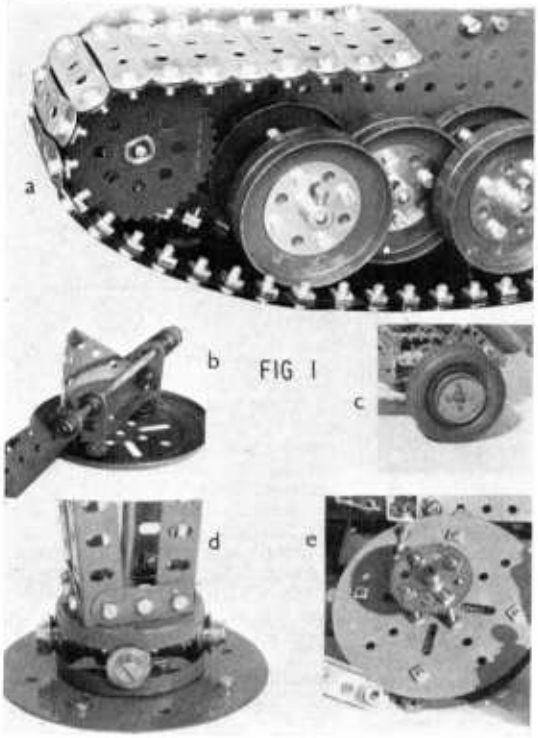


FIG 1

Meccano Parts and how to use them

Part 10

Rigid Circular Parts

By B. N. Love

Fig. 1a. Wheel Flanges form neat running gear for model tank tracks.
Fig. 1b. The flanged disc of the Ball Thrust Bearing serves as part of a passenger car on a fairground ride.
Fig. 1c. Footstep ring on a lorry wheel provided by a Wheel Flange.
Fig. 1d. Two Wheel Flanges form a strong thrust roller bearing with ½ in. Pulleys.
Fig. 1e. The 4 in. Circular Plate used as a power sprocket on a Crawler Tractor.

AS the modeller develops his skill and increases his stocks of Meccano parts, he will come across the various rigid circular pieces in the system. Washers and Wheel Discs come into this category at the small diameter end of the range and the 9½ in. Flanged Ring, which is illustrated in Part 9 of this series, is the largest circular part in the standard list of parts. The smallest of the flanged discs is Part No. 137, Wheel Flange, which is designed to fit over a Face Plate with sufficient clearance to pass over the boss and Set Screw of the Face Plate to simulate a railway wheel. In fact, the clearance hole in the centre of the Wheel Flange is of ½ in. diameter, so it will also fit over the bosses of the larger Sprocket Wheels and the 3½ in. Gear Wheel. Fig. 1c shows a simple application of this part where it is serving as a footstep ring on a lorry wheel. The Wheel Flange can be used as a built-up wheel by bolting it to a Bush Wheel as shown in Fig. 1a, either single or twin flanges being used to provide running gear for a wide-form tank-track reminiscent of the famous German Panther and Tiger tanks. In Fig. 1d we see a further use of this part where it forms a thrust roller bearing with ½ in. Pulleys capable of supporting a large revolving crane superstructure or fairground model. Having a large clearance hole at its centre, the Wheel Flange permits cable entry up through a rotating mast to feed electric motors and lights in control cabins at the top. When bolted to a 4 in. diameter Circular Plate as shown, a strong base is provided and as the Circular Plate is also designed with a ½ in. diameter centre hole, cable entry is obtained through both components illustrated in Fig. 1d. Standard Meccano Sprocket Wheels are available up to 3 in. diameter but this does not limit the dedicated constructor. A special built-up "sprocket" wheel is shown in Fig. 1e and although it has only eight teeth, it is capable of driving the tracks of a model bulldozer of very generous proportions. In this case, two 4 in. diameter Circular Plates, Part No. 146a, are fitted with Narrow Strips sandwiched between them, suitably spaced by Washers. The tips of the Narrow Strips protrude ½ in. all round to engage driving dogs in the form of Angle Brackets bolted to the bulldozer crawler tracks. Slotted holes in the 4 in. plates can be clearly seen, and this permits the attachment of assemblies requiring latitude in spacing. Part No. 146 is a larger edition of Circular Plate No. 146a being 6 in. diameter but it is made in a gauge of steel about twice as thick as the 4 in. version. It, too, has a ½ in. centre hole and is suitable for making the base plates of turntables etc.

One of the "special-purpose" Meccano parts is the 4 in. diameter Ball Thrust Bearing which has useful sub-assemblies. One of these is the flanged disc illustrated in Fig. 1b where it is simply used as an ornamental dished base for a passenger cupola on a fairground ride. However, when these flanged discs are paired up, they become versatile wheels as Figs 2 and 3 illustrate. Fig. 2 shows a neat model of an Experimental Steam Carriage for which a solid single front wheel was required of appropriate scale. This was achieved by mounting two of the flanged discs, Part No. 168a, on Bush Wheels and placing them face-to-face on a short Axle Rod held in a forked steering arm. A second use for a pair of these flanged discs is shown in Fig. 3 where they form a neatly proportioned flywheel on a model Showman's Engine. However, this time the discs are not set face-to-face but are both mounted on the flywheel shaft with their flanges facing inwards. This gives the most suitable rim surface for maintaining a belt drive to the dynamo at the front of the model, but the

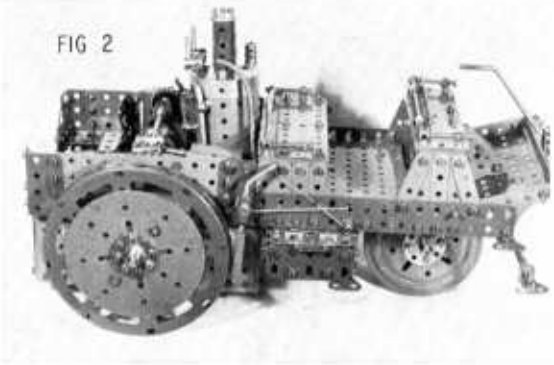


Fig. 2. An Experimental Steam Carriage model makes use of Hub Discs, Circular Plates and flanged discs for scale wheels.

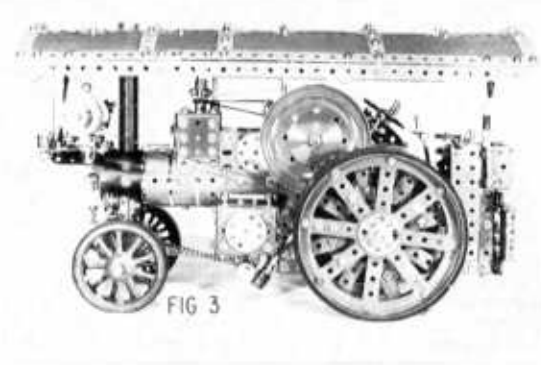


Fig. 3. A Showman's Engine making excellent use of Meccano circular parts for wheels and ornamentation.

setting up of a pair of these discs in this manner requires patience and care for trouble-free running. These latter two illustrations also show a further rigid circular part, i.e. the Hub Disc, Part No. 118. On the Steam Carriage in Fig. 2, the wheel is made from one Hub Disc largely covered in by a 4 in. Circular Plate and held in position by a Bush Wheel bolted to both parts. The Showman's Engine in Fig. 3 uses a pair of Hub Discs, each of which has eight spokes, but by staggering the spokes as shown and securing the Hub Discs together by Reversed Angle Brackets, the "interwoven" pattern, common to most traction engine wheels, is neatly suggested. Note that a similar staggering is given to the twin sets of 3 in. Spoked Wheels at the front of the Showman's Engine to give the multiple spoke effect. Wheel Discs mounted on the steam chest, belly tanks, and rear wheel hubs show the decorative effect of using these smaller circular parts.

Of similar proportions to the Hub Disc is the Circular Girder, Part No. 143. Both are 5½ in. diameter and the Circular Girder may be considered as a Hub Disc with the spokes removed. Although not visible in Fig. 3, a Circular Girder is sandwiched between the two Hub Discs forming the rear wheel of the Showman's Engine. This gives a 1½ in. broad rim to the rear wheel which permits a wide "tyre" to be attached for good scale appearance. Fig. 4 shows a pair of Circular Girders forming the centralising joint of a radial network of Angle Girders forming a large circular base or massive wheel for a fairground ride. A feature of both the Hub Disc and the Circular Girder are the long slots in the flanges of both parts. Basically, these components have eight holes spaced round their circular rims at 45°, but there are occasions when a six point attachment is required, or multiples thereof. The points on a clock dial is one case where an eight spacing is very awkward, but by placing Bolts or Threaded Pins in the slotted holes of the flanges, a twelve point attachment is simple. Finally, the 167b Flanged Ring, (which is actually listed as 9⅞ in. diameter), is illustrated in Fig. 5. It has two sets of attachment holes, one set of eight in the rim and one set of sixteen in the flange. These can be clearly seen in Fig. 5, and it would appear that there is a convenient 5 hole spacing between the sixteen flange holes. This is not the case however, and the Flexible Plates shown are stood off from the flanges by Washers to increase the radius of attachment to accommodate the five hole spacing shown. As the Flexible Plates have slotted end holes, this helps with the spacing problem. In larger scale traction and showmen's engines, these large Flanged Rings are commonly used for the rear wheel sections but the depth of the rim gives an out of scale appearance. It is better, therefore, from the constructional point of view, to avoid these for traction engine wheels and to build up from Curved Strips. Although Fig. 5 shows the base of a turntable drum, the advanced constructor will see its possibilities as a flywheel for a full size model of a motor car engine!

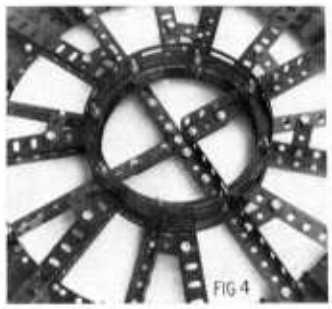
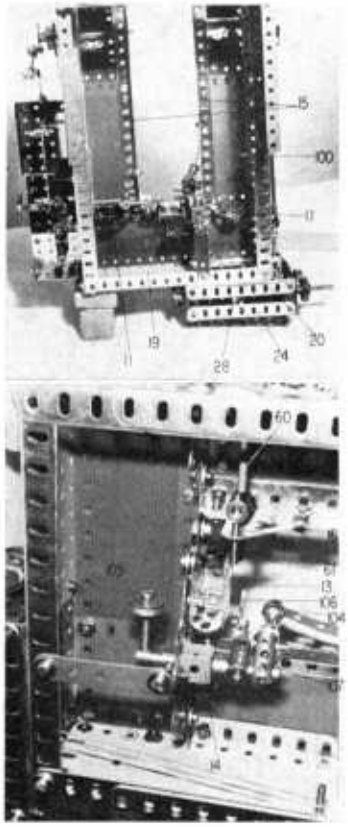


Fig. 4. Right, the Circular Girder as a hub centre. Note elongated slots in the flange for varying attachment points. Fig. 5. Far right, Part 167b large Flanged Ring gives shape and strength to circular bases for turntables and flywheels.



Top, An underside view of the forward part of the main body section, from which the ram has been removed.

Above, the die-block and part of the rivet ejection mechanism in close-up—viewed from beneath.

Below, the left-hand end of the feed roller assembly with the actuating connecting rods removed.

Automatic Rivet-making Machine

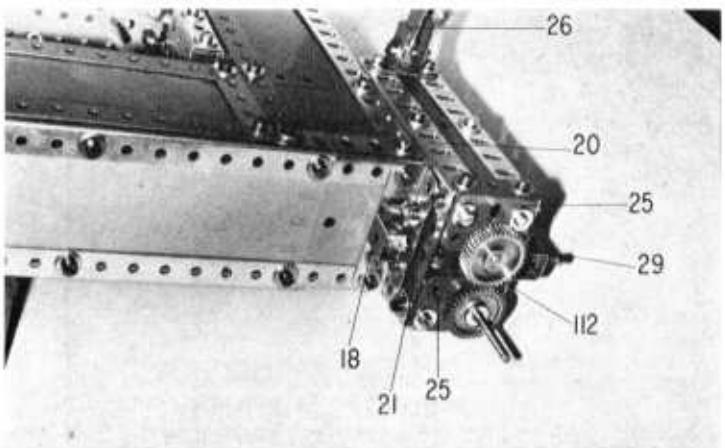
Part 2 of an advanced model requiring relatively few parts

By P. Blythe

Toggle Links

The toggle links themselves are next to be built, each flap of the toggle being provided by a 1½ × 1½ in. Flat Plate 42. Bolted to the front plate and to one end only of the rear Plate are three 1½ in. Angle Girders, the forward Girder on the front flap carrying on its slotted flange a pair of Angle Brackets adjusted so that their round hole lugs fit neatly within the lugs of Double Angle Strip 40. A 2½ in. Rod 43, held in place by Spring Clips, pivotally attaches the flap to the ram. The two remaining 1½ in. Angle Girders on the toggle flaps each carry a 1½ × ½ in. Double Angle Strip 44, the lugs of which are pivotally fixed together by a 2½ in. Rod. The lower ends of Strips 33 are slipped on to this Rod and secured in place by Collars. It will be necessary to crank Strips 33 slightly to obtain a good fit.

The rear toggle flap is now attached to the pair of hinges already bolted to Girder 12 of the frame. Two 11½ in. Rods 45 are slid through the end holes of Girders 38 on the ram and are then located in Flat Trunnions 11 inside the frame, the Rods being finally held in place by Spring Clips. The Trunnions may require slight adjustment to ensure that the ram is centrally located and slides freely.



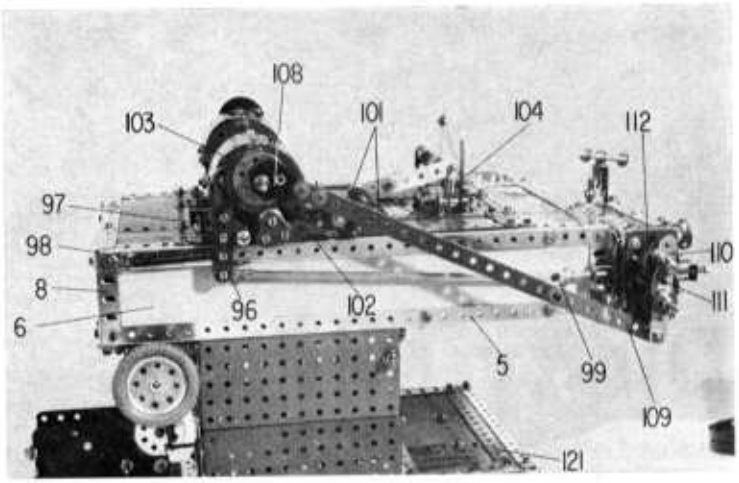
Tool Box Slide

Next in line is the tool box slide, for which the round hole flanges of a pair of 2½ in. Angle Girders are joined together by a 2½ in. Flat Girder 46, the lower pair of Bolts also securing in place a 1 in. Triangular Plate 47—stood off by two pairs of Washers—the third hole of which has a Collar bolted through it to represent the bottom heading tool. A further Triangular Plate 48 with Collar is bolted in a similar manner to the slide, one hole down from the top to serve as the upper heading tool. The 2½ in. long "channel" is enclosed at the top by two Angle Brackets 49 secured by their round holes. To the slotted ends of these Angle Brackets inside the channel is fixed a Coupling with its centre smooth transverse bore vertically disposed and carrying a 4 in. Rod 50 secured firmly by the Grub Screw. This Rod is slid into Coupling 39 fixed on the front of the ram, care being taken to ensure that the tool box assembly can move freely up and down. To the bottom end of the Rod is fitted a Rod Socket 51, carrying a rearwards-facing 2 in. Strip 52.

Lift Mechanism

Coming to the lift mechanism, two 5½ × 2½ in. Flanged Plates 53 are bolted (one each side) to the underside of the body to leave five free holes at the rear. An 8½ in. Rod 54 is fitted with a pair of Cranks 55, reinforced with 1½ in. Strips, then two Threaded Pins are screwed into the boss of a Slide Piece 56 and the shanks located in the ends of the Cranks and 1½ in. Strips. Collars secure the Slide Piece assembly in position. The 8½ in. Rod is journalled in the 5½ × 2½ in. Flanged Plates, as shown, with the Slide Piece fitted on to a 2 in. Strip 52 fixed to the bottom of the tool slide. The Rod is retained by a Collar on the left-hand side and a Crank—with a Threaded Pin 57 attached to its slotted hole—on the right-hand side.

A 5½ in. Strip 58 is next bolted to a Triple-throw Eccentric 59, which is mounted by the ¾ in. stroke boss



A close-up view of the left-hand side of the model with the flywheel removed to show the connecting linkages.

on the right-hand side of the crankshaft. This Strip is secured through its lowest hole on the shank of Threaded Pin 57 by a Collar. If all is well, when the crankshaft is rotated, the ram will move backwards and forwards and the tool slide up and down. It will be necessary to position the Eccentric correctly so that the 2 in. Strip on the tool slide does not strike the 8½ in. cross-shaft.

Wire Cutting Mechanism

Turning, now, to the mechanism which simulates the wire-cutting action, a 4½ in. Rod 60 represents the cutter slide, this being journalled in the right-hand Flat Plate of the body side with the inner end of the Rod sliding in the centre hole of 1½ in. Corner Bracket 16 inside the body. The Rod must be prevented from rotating, but must slide freely from side to side. On the Rod is fitted a Coupling which carries in its lower bore a 1 in. Rod 61, this Rod passing through the lower hole in the Corner Bracket. On the end of Rod 60, where it emerges from the side of the machine, a further Coupling 62, vertically disposed, is secured by its centre traverse bore, a 1½ in. Rod 63 projecting from the lower end of its longitudinal bore.

To the extreme end of Rod 60 is secured a Threaded Coupling 64 mounted by its longitudinal bore and locked by a 1½ in. Bolt projecting vertically upwards. Secured by a Nut under the head of this Bolt is a 1½ in. Strip 65 facing "across" the machine, the Bolt passing through its central hole. A Rod and Strip Connector is fitted on the inboard end of the cutter slide-rod to represent the cutter and, when moved from side to side, should just clear the die block.

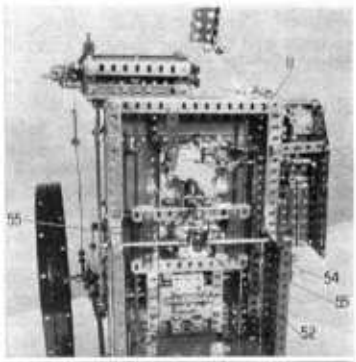
Into the longitudinal tapped bore of Threaded Coupling 64 is screwed a ¾ in. Bolt which is secured by a lock-nut. Also locked, through its end hole, beneath the bolt head, is a 2 in. Strip 66, projecting vertically upwards. Attached by its boss to the upper end of this Strip is an End Bearing 67, the lugs of which carry the "Fiddle Bow"—the device which carries the slug of wire across from the cut-off die to the main forging die. The assembly is made up simply by a 5½ in. Perforated Strip 67, the inboard end of which carries a vertical 2½ in. Strip, fixed by its centre hole. The fixing Bolt also holds a 3½ in. Narrow Strip 68, the free end of which is attached to a 2½ in. Narrow Strip, as shown, to complete the roughly triangular shape of the assembly.

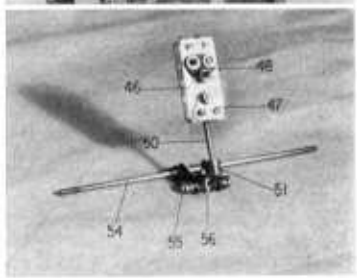
The "Fiddle Bow" guide is provided by a Single Bent Strip 69 fixed by its centre hole to the right-hand side of the ram slideway. A ¾ in. Bolt with suitably-placed Washers and lock-nuts, provides the location for the 5½ in. sliding Strip.

A 3 in. Angle Girder 70 is bolted to the side of the frame by its round hole flange, four holes back from the front of the body, with its projecting flange uppermost. To the front end of this Girder, and projecting out to the right to form part of the Cutter Slide housing, is a 2 in. Angle Girder, to the downward-facing slotted flange of which a forward-projecting Girder Bracket 71 is bolted. This is extended further by a second Girder Bracket, the wide flanges being overlapped one hole. These latter parts make up the tool tray, the right-hand side of which is enclosed by a 1½ in. Angle Girder 72, the front fixing Bolt also securing in place an Angle Bracket with its slotted lug facing downwards. Another Girder Bracket 73, attached by its narrow flange, is bolted to the underside of the tool tray to enclose the front of the Cutter Slide housing, the lower right-hand hole of this latter Girder Bracket carrying an Angle Bracket, its free lug facing rearwards.

The top of the Cutter Slide housing is now further enclosed by a pair of 2 in. Strips 74, bolted—one hole apart—to the 3 in. Girder. Moving further back still, another 2 in. Angle Girder 75 is bolted to Girder 70 through its second hole, while bolted in the end hole of Girder 70 is an Angle Bracket, to the slotted lug of which is secured a second rearward-projecting 3 in. Angle Girder 76 which is secured at its rear end to the body by a Double Bracket. (This latter 3 in. Girder is therefore spaced one hole away from the side of the body.) To the horizontal flange of the Girder is bolted a 3 × 1½ in. Flat Plate 77, edged by two 1½ in. Angle Girders and a 3 in. Angle Girder 78.

(*continued on page* 499)





Top right, this picture shows the interior of the body assembly, viewed from beneath. It is complete except for the base motor drive.

Right, a close-up view of the tool box slide as it appears removed from the model.

Lunar Rover Kit

Dinky's final release this month should be to the liking of the do-it-yourself fraternity—being a kit version of the existing Lunar Roving Vehicle—the moon buggy that has already proved very popular as a "ready-made" model.

Dinky Kits have established themselves as a highly successful line, and Meccano are now regularly increasing the range as promised when the Kits were first introduced. At the time of writing the figure stands at fourteen models including the Lunar Rover. The popularity of the Dinky Kits has undoubtedly been greatly influenced by the very competitive price at which they are sold. All the Kits include die-cast components, and if one was to compare Dinky's Kits with other metal kits on the market, the value would immediately be apparent, bearing in mind that they are not aimed at the adult kit enthusiast who might be willing to spend several pounds for one of the specialist advanced kits sometimes found on the "expert's" market.

Apart from the twenty-eight components required to build up into the Lunar Rover, the kit comes complete with two model astronauts, and a sample phial of Humbrol enamel. Identified by No. 1027, it retails at only 69p which represents an excellent buy.

Pirate Models

Mention "pirates" to most people and you are likely to conjure up visions of black-bearded, cutlass-swinging demons swarming down from heavily-armed ships to loot and pillage among law-abiding citizens. This image, however, would be totally false if applied to a particular brand of 20th Century pirates to be found in London—Pirate Models, of 6 Manor Hall Drive, London, N.W.4—for this oddly-named Company is in fact in business to assist the public, not to harm it. They specialise in providing spare parts such as radiators, windscreens, wheels, etc. for obsolete models, particularly old and rare Dinky Toys, and, to my knowledge, they are the only organisation in the Country who do so.

All the spare parts available are replica components, newly made, and of special interest is a selection of different-sized tyres—both black and white—reproduced from the early Dinky period when plain, treadless tyres were fitted to models. These could prove particularly valuable as missing tyres probably present by far the biggest problem to serious collectors, intent on renovating old Dinky Toys to their original condition. Further information on available items can be obtained direct from Pirate Models.

Opposite, left, two views of Dinky Toy No. 410 Bedford Van "Royal Mail" clearly portraying its outstanding realism and impeccable overall finish.

Opposite, right, a close-up rear-quarter view of the Bedford Van clearly showing the wealth of fine, realistic detail present on this good solid Dinky.

Right, up, up and away . . . ! No. 728 R.A.F. Dominie is a valuable addition to the Dinky aircraft range.

RIVETING

(*continued from page* 497)

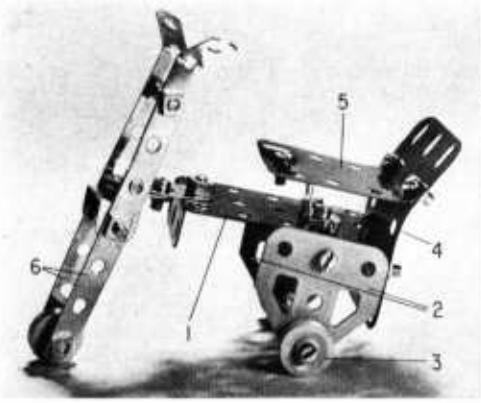
The free ends of the 2 in. Girders and 2 in. Strips are connected by a 2½ in. Angle Girder, the downward projecting flange of which is extended by a pair of 1½ in. Flat Girders 79.

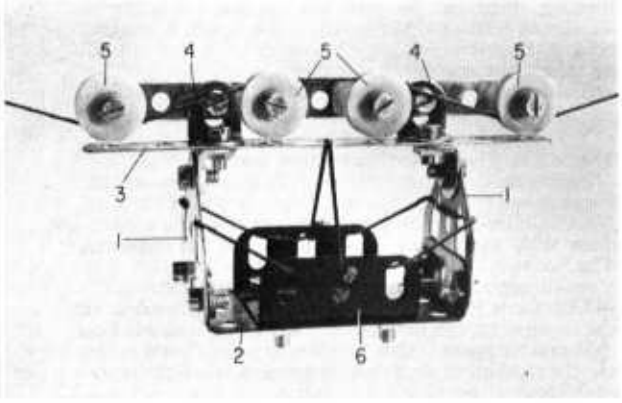
To the underside of the tool tray is bolted a 1 × 1 in. Angle Bracket 80, spaced one hole away from the side of the body. This carries a 4 in. Rod which slides also in a further 1 × 1 in. Angle Bracket 81 bolted to the 5½ × 2½ in. Flat Plate on the side of the body. As this Rod also must not rotate, it carries towards the forward end a Coupling 82, in the opposite transverse plain bore of which is secured a 1½ in. Rod which also slides in front Angle Bracket 80. Two further Couplings 83 and 84 are secured to the 4 in. Rod, Coupling 83 being mounted by its central transverse bore with its vertical longitudinal bore carrying a downward-projecting 1 in. Rod 85. The rear Coupling is also vertically disposed and carries in its lowest transverse bore a Threaded Pin 86.

This assembly, which slides backwards and forwards, must now drive the cutter slide which moves at 90° to it. To achieve this, the two vertically projecting 1 in. Rods 63 and 85 engage in the slotted holes of a small bell crank 87, made up from a pair of Fishplates secured by their round holes to a Rod Socket. Another 1 in. Rod is fixed to the boss of the Socket, this Rod swivelling freely in a Handrail Support 88 fixed to the lower frame member. To the underside of the 3 × 1½ in. Flat Plate is bolted a 1 × ½ in. Double Bracket 89 which carries a Bell Crank fitted with one arm projecting downwards, the other rearwards. The latter arm is extended a further two holes by a 2½ in. Strip 90, the outer hole of which carries a Pivot Bolt upon which a Coupling 91 swivels freely. A Threaded Pin is secured to the vertical arm of the bell crank, the plain shank carrying a 3½ in. Strip 92 which is retained by a Collar. The forward end of the Strip fits on to Threaded Pin 86, where it is secured by a further Collar. To drive the cutter arm mechanism a Bush Wheel 93 is secured to the end of the right-hand side of the crankshaft. A Coupling is pivotally fixed to the Bush Wheel by a Pivot Bolt, this Coupling then being joined to Coupling 91 by a 3 in. Rod.

Finally, the side of the Cutter Slide housing is enclosed by Flexible Plates, Perforated Strips, and a Flat Girder 94. This side panel is fixed to the side of the frame by a 2½ × ½ in. Double Angle Strip.

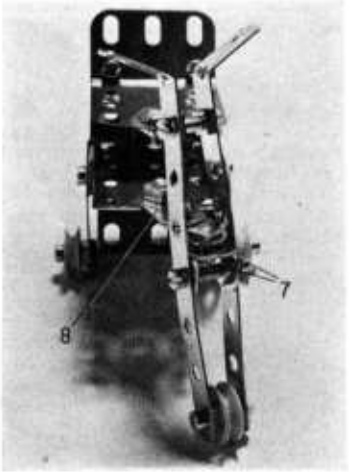
(*to be continued*)





The Last from Pocket Meccano 1971

by 'Spanner'



A front view of the Moon Cycle showing assembly of the front forks.

BY the time this issue of the M.M. goes to press, the 1972 Pocket Meccano Competition, which has been running over the past few months, will have just closed. The results will be available before very long and so this is really my last chance to feature some more of the models entered in last year's Competition. From next month onwards, I must concentrate on the new contest models—as is only right—therefore I finish off the "old" now with three presentations which I, personally, find fascinating. All three, are, of necessity, very simple in design, but, without exception, they all show great ingenuity, as a glance at the accompanying illustrations will show.

Moon cycle

First in line is a little tricycle model of unusual design which has been entitled "Moon Cycle" by its inventor, 8 years-old Richard Taylor of Liversedge, Yorkshire. Richard was actually aged 7 when he designed the model and I think that this fact is enough to earn him special praise for his skill. I know I couldn't have done it at 7!

Attached by Angle Brackets to a 2½ × 1½ in. Flanged Plate 1 are two Flat Trunnions 2, in the apex hole of each of which a ½ in. Bolt is held by two Nuts, a ½ in. Pulley 3 revolving freely on the Bolt shank to serve as one of the rear wheels. A 2½ × 1½ in. Plastic Plate 4 is then bolted to the rear end flange of Plate 1, the securing Bolts passing through the second holes up of the Plastic Plate. Another 2½ × 1½ in. Plastic Plate 5 is bolted to the upper section of Plate 4, this being curved to shape to form the seat and attached at its forward end to a ½ in. Reversed Angle Bracket bolted to Plate 1.

The front fork assembly is built up from two 4½ in. Narrow Strips 6 connected together through their fourth holes up by two Angle Brackets 7 arranged to form a double bracket and held in place by three Nuts on a ¾ in. Bolt. The ordinary Bolt securing the horizontal lugs of the Angle Brackets together also tightly holds a Fishplate in place, this being extended by a further Fishplate 8 which is lock-nutted to the front row centre hole of Flanged Plate 1. The lower ends of Strips 6 are connected by a ½ in. Bolt and Nuts, a ½ in. Pulley being carried on the Bolt shank to serve as the front wheel. A second ½ in. Bolt, with Nuts, further connects the Strips together through their third holes from the upper ends, then, finally, the top half-inch of each Strip is bent outwards to form the handlebars and complete the model.

Above left, first of the final three models from last year's Pocket Meccano Competition is this Moon Cycle, designed by Richard Taylor of Liversedge, Yorkshire.

Above, C. J. Barling of Bromley, Kent, deserves full credit for this little Cable Car which includes an interesting braking system.

PARTS REQUIRED

2—10	28—37a	1—111	2—126a
4—12	13—37b	4—111a	2—194
3—23	1—51	1—125	2—235d

Cable Car

Master C. J. Barling of Bromley, Kent is the designer of our second offering, which goes under the title of "Cable Car". Several good Cable Cars were actually entered in

the Competition, but I found this example especially interesting because of a built-in braking system it incorporates.

Two Flat Trunnions 1 are bolted, one to each end flange of a 2½ × 1½ in. Flanged Plate 2, while an Angle Bracket is secured to the apex of each Trunnion. The horizontal lugs of these Angle Brackets are connected by a 4½ in. Narrow Strip 3, the securing Bolts also fixing two further Angle Brackets 4 in position. A second 4½ in. Narrow Strip is bolted to the vertical lugs of these Angle Brackets, four ½ in. Bolts, each carrying a ½ in. Pulley 5, being locked by Nuts in the first, fourth, sixth and ninth holes of this Strip. A 2½ × 1½ in. Plastic Plate 6, bent to the shape shown, is bolted to the top of Flanged Plate 1, then a short length of Cord is threaded as shown between this Plate, Flat Trunnions 1 and Narrow Strip 3 to represent bracing stanchions.

The braking system mentioned earlier is achieved by the manner of threading the Car's supporting cable around Pulleys 5. Instead of simply running the cable beneath the Pulleys, it should be passed under the first Pulley, over the two centre Pulleys and under the last Pulley. If this is done, tightening the supporting cable will cause the Car to stop, while loosening it slightly will allow the Car to run along the cable. This effect can best be seen if the supporting cable is held in the hands for demonstration purposes.

PARTS REQUIRED

4—12	14—37b	4—111a
4—23	1—40	2—126a
22—37a	1—51	1—194
		2—235d

Fork Lift Truck

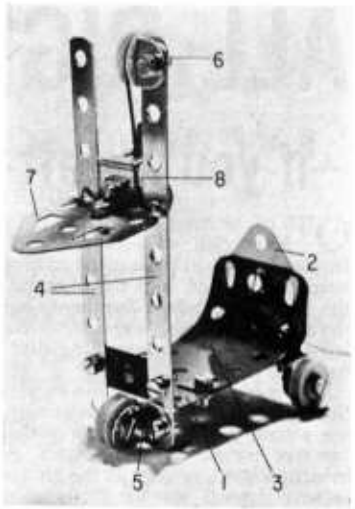
Last, but by no means least, we have a very appealing Fork Lift Truck designed by Mark Johnson of Gatley, Cheadle, Cheshire. I think Mark has made an excellent job of it as the model actually includes a working lift device which, although simple, is remarkably effective in operation.

A working Fork Lift Truck designed by Mark Johnson of Gatley, Cheadle, Cheshire—a very appealing model.

The chassis consists of a 2½ × 1½ in. Flanged Plate 1, to the rear corners of which two Angle Brackets are bolted. Locked by Nuts in the spare lug of each of these Brackets is a ½ in. Bolt, on the shank of which a ½ in. Pulley is mounted to serve as one or other of the rear wheels. Bolted to the rear flange of Plate 1 is a Flat Trunnion 2, a 2½ × 1½ in. Plastic Plate 3 being curved to a seat shape and bolted to both this Trunnion and the Flanged Plate.

Two 4½ in. Narrow Strips 4 are next bolted to the forward flange of Plate 1, the securing Bolts passing through the second holes up of the Strips and the end holes in the Plate flange. An Angle Bracket 5 is fixed to the lower end of the left-hand Strip, a ½ in. Bolt, carrying a ½ in. Pulley, being locked by Nuts in the spare lug of this Angle Bracket. Another Angle Bracket is fixed to the upper end of the same Strip and, again, a ½ in. Bolt carrying a ½ in. Pulley 6 is locked by Nuts in its spare lug.

Narrow Strips 4, of course, act as runners for the actual lifting platform which is easily built up from a Flat Trunnion 7 bolted to the slotted hole lug of a ½ in. Reversed Angle Bracket. Bolted to the centre lug of the same Bracket are two Fishplates 8, these being positioned on one side



of the Narrow Strips, while the Flat Trunnion is positioned on the other side. Using the slotted hole in the Reversed Angle Bracket, the position of the Trunnion should be adjusted to obtain the minimum "play" between the platform assembly and the Narrow Strips. A length of Cord is then tied to the spare lug of the Reversed Angle Bracket, is brought up and over Pulley 6, then is brought down and threaded through the hole in the same Bracket lug. From there it is threaded through the second row centre hole of Flanged Plate 1, being taken rearwards and threaded through the end row centre hole of the Flanged Plate to be finally brought out through the centre base hole of Flat Trunnion 2. Needless to say, when the Cord is pulled, the lift platform should rise.

PARTS REQUIRED

2—10	19—37a	1—51	2—126a
4—12	11—37b	4—111a	1—194
4—23	1—40	1—125	2—235d

Meccano Exhibition

A Meccano and Model Railway Exhibition will take place at Henley-on-Thames Town Hall, on Saturday, September 2nd, 1972. The Exhibition will be open all day, from at least 10 a.m. until 6 p.m. and possibly later. All Meccano model makers are invited to take part and display their work—the stage and 100 feet of tabling must be covered! It is hoped that members of the Midlands Meccano Guild, Holy Trinity, and Stevenage Meccano Clubs will also take this opportunity to publicise the Meccano hobby.

To help provide a balance, and make for a real family occasion, several large model railway layouts in OO and N gauges will be in operation, British Rail will be showing films, and there will be static displays of vintage and veteran Hornby Trains and Dinky Toys.

ALL RIGHT (continued from page 514)

children are often ambidextrous, and that examples of true left-handedness have been suppressed by early training. Ambidexterity can be cultivated. One of the most eminent surgeons of this century, Sir Arbuthnot Lane, taught himself to operate with either hand in order to save time and consequently shock to the patient. Lord Baden-Powell, founder of Scouting, trained himself to be equally efficient with either hand as part of the movement's motto, "Be Prepared".

To conclude with an extraordinary example of such skill. The great virtuoso and composer of last century, Franz Liszt, "Wizard of the Piano", having been repeatedly pressed on one occasion at some social function to play, at last went to the keyboard. But he stood with his back to the instrument and played with his hands behind him and inverted—a phenomenal feat