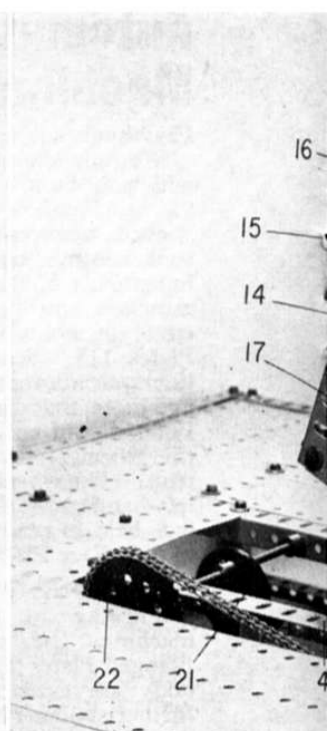
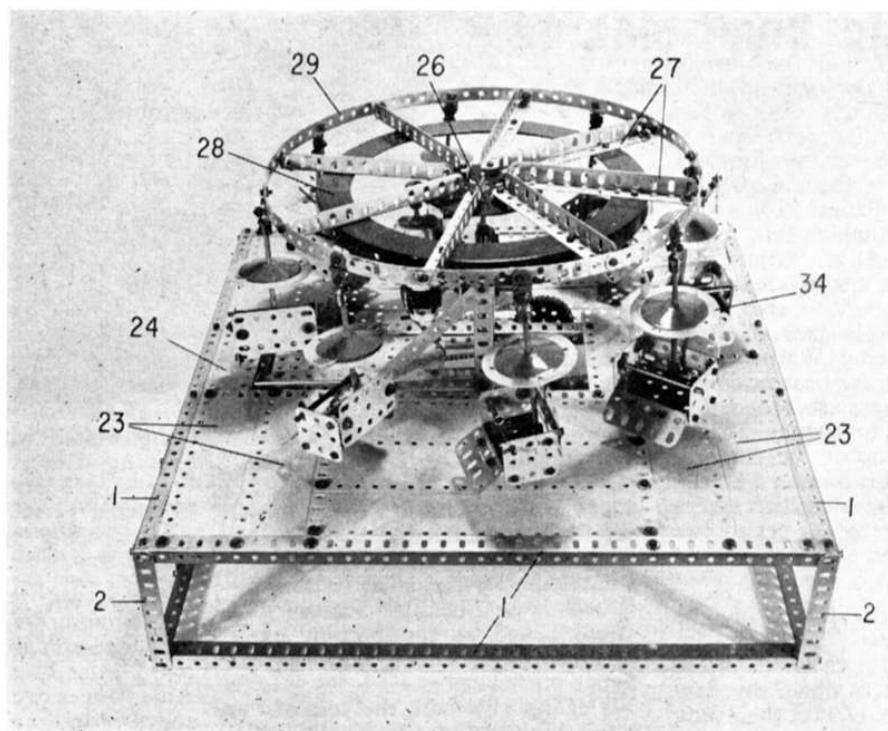


Far right, "Rising Swingers" is the title 'Spanner' has given to this intriguing Meccano fairground ride. Centre, in this illustration, the revolving structure has been removed to show the tilting arm. Right, in this general view of the "Rising Swingers" the overall layout of the model is clearly shown.



LOOKING back through past issues of Meccano Magazine, it struck me that we haven't paid a visit to the fairground for some considerable time—speaking purely from a model-building point of view, of course. Fairground rides have always proved popular with modellers, as well as with members of the public who see their models, so we felt it was about time that we again presented something in this line. I say "again" because we have featured very many fairground models in these pages over the years—so many, in fact, that I might have thought we had covered everything there is to cover, if our ingenious Yorkshire model-builder hadn't come up with the quite fascinating "Rising Swingers" illustrated in the accompanying photographs!

I hasten to add that "Rising Swingers" is the name I have given to the model. I seriously doubt if it is the correct title, but I do think it describes the model reasonably accurately. Basically, it is a roundabout in which the passenger chairs are suspended on a pivoted overhead mounting. Thus, as the roundabout revolves, the chairs swing outwards under the action of centrifugal force. This movement, alone, would not be particularly outstanding, of course, but it is not the only movement. While the chairs are whirling round, the whole revolving section gradually rises up at an angle until the chairs are spinning well out of the vertical, and

then it sinks down again to normal, then up again, and so on as often as required.

The two distinct movements are achieved with the minimum of trouble in the model by the use of two separate Motors with Gearbox, one to drive the revolving motion and the other the lifting action, but we will deal with these as we come to them. Construction begins with a base framework consisting of two separate square Girder constructions each built up from four  $18\frac{1}{2}$  in. Angle Girders 1, the two squares being connected together at the corners by  $4\frac{1}{2}$  in. Angle Girders 2. Two further  $18\frac{1}{2}$  in. Angle Girders 3 are bolted between the sixteenth and twenty-second holes of two opposing lower Girders 1, while another two similar Girders 4 are bolted between the fifteenth and twenty-third holes of corresponding upper Girders 1. The centres of Girders 3 and 4 are connected by two  $4\frac{1}{2}$  in. Angle Girders, the lower connection in each case being strengthened with a Corner Gusset. A Crank 5 is bolted to each Gusset and Girder, the boss coinciding with the centre hole of the Girder.

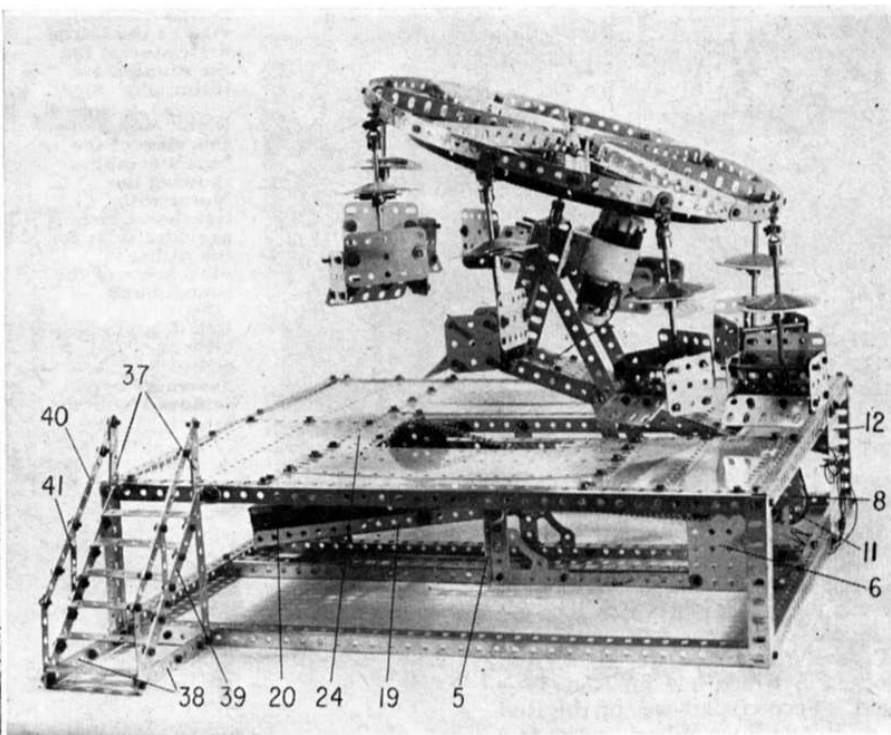
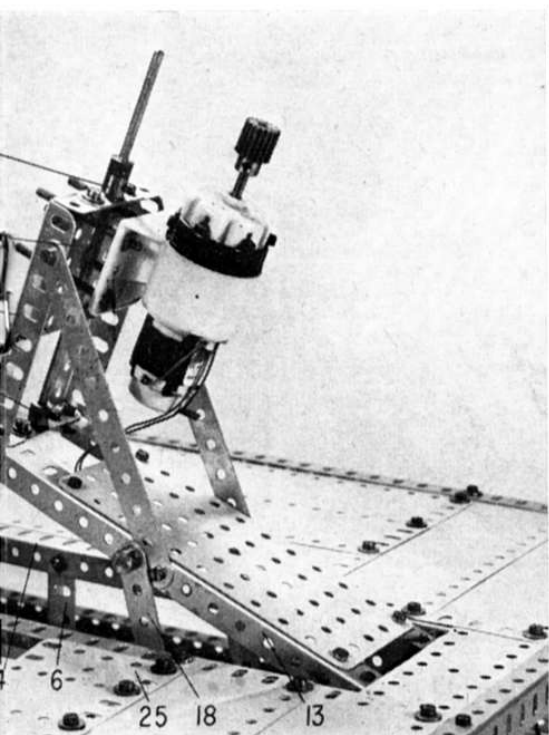
Also bolted between Girders 3 and 4, in the positions shown, are two  $4\frac{1}{2} \times 2\frac{1}{2}$  in. Flat Plates 6, in which a  $4\frac{1}{2}$  in. Rod 7 is held by Collars. A  $\frac{7}{16}$  in. Pinion on this Rod meshes with a 60-teeth Gear 8 fixed vertically above it on another  $4\frac{1}{2}$  in. Rod, also held by Collars in Plates 6. A  $\frac{1}{2}$  in. Pinion is also secured on the

# RISING S

## 'Spanner' describes fairground

Rod, this meshing with a  $2\frac{1}{2}$  in. Gear 9 on a 5 in. Rod held by Collars in the Flat Plates. A  $\frac{3}{4}$  in. Sprocket Wheel 10 is secured on the end of this Rod. A  $1\frac{1}{2}$  in. Pulley 11 is now fixed on the opposite end of Rod 7, this being connected by a 6 in. Driving Band to a  $\frac{1}{2}$  in. Pulley fixed on the output shaft of a Motor with Gearbox secured to a  $4\frac{1}{2} \times 2\frac{1}{2}$  in. Flat Plate 12, bolted between nearby Angle Girders 1 and 2. The Motor gearbox is set into the 16:1 ratio.

As can be seen from the photographs, the top of the base framework is enclosed by suitable plating, but, before adding this, it is advisable to complete the lifting arm and turntable drive system. Two  $7\frac{1}{2}$  in. Angle Girders 13 are joined at one end by a  $2\frac{1}{2}$  in. Strip and throughout the major part of their remaining length by a  $4\frac{1}{2} \times 2\frac{1}{2}$  in. Flat Plate. Two upright  $4\frac{1}{2}$  in. Angle Girders 14 are bolted to the inner ends of the Girders and braced by two  $5\frac{1}{2}$  in. Strips running between the centre holes of Girders 13 and the second



# WINGERS

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und ride

holes down of Girders 14. A  $2\frac{1}{2}$  in. Angle Girder is bolted between the upper ends of Girders 14, the securing Bolts helping to fix a  $2\frac{1}{2} \times 2\frac{1}{2}$  in. Flat Plate 15 to the "backs" of the Girders. A Double Arm Crank 16 is bolted to the upper flange of the  $2\frac{1}{2}$  in. Girder, another similar Crank 17 being bolted to the  $2\frac{1}{2}$  in. Strip joining Girder 13, then four 2 in. Screwed Rods are tightly fixed by Nuts in Flanged Plate 15 in the positions shown, the two upper Rods also passing through the  $2\frac{1}{2}$  in. Angle Girder. The second Motor with Gearbox, set in the 32:1 ratio, is securely fixed by Nuts on the Screwed Rods, the exact positioning of the Motor later being determined by the turntable drive gearing. A  $\frac{1}{2} \times \frac{1}{2}$  in. Pinion is fixed on the end of the Motor output shaft.

Four  $3\frac{1}{2}$  in. Strips 18 in two pairs, one on top of the other, are pivotally attached to Girders 13 by a 3 in. Rod which passes through the end holes of each pair of Strips and through the ninth holes inward of Girders 13. Collars hold the Rod in

place. Pivotaly attached to the lower end of the Strips by a  $3\frac{1}{2}$  in. Rod held by Collars are two  $12\frac{1}{2}$  in. Angle Girders 19, connected together at the ends and through their eighth and tenth holes by four  $2\frac{1}{2}$  in. Angle Girders, the Rod passing through the end holes of Girders 19. A suitable counterweight 20 (we used a  $3\frac{1}{2}$  lb. chunk of lead) is secured to the opposite end of the Girders.

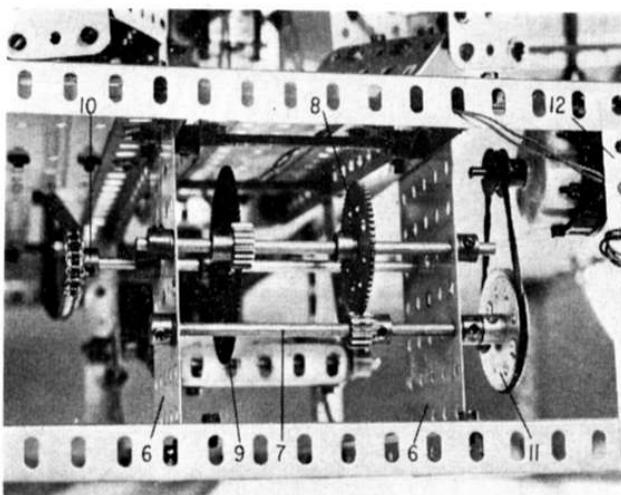
Bolted to each Girder 19 is a Double Arm Crank, the boss of the Crank coinciding with the ninth hole of the Girder. The assembly, thus far built, is now mounted in the base framework by means of a 5 in. Rod passed through the bosses of these Double Arm Cranks and through the bosses of Cranks 5. Note that the Rod is fixed in the former Cranks, but is free to turn in the latter.

Now held by Collars in the twelfth holes from the counterweight end of Girders 19 is a  $3\frac{1}{2}$  in. Rod, on which a Crank is fixed. The arm of this Crank is, in turn, fixed to the arm of a Triple-throw Eccentric 21, secured by this  $\frac{3}{4}$  in. stroke boss on a  $5\frac{1}{2}$  in. Rod held by a Collar and a 2 in. Sprocket Wheel 22 in the fifteenth holes of Angle Girders 4 in the base frame. Sprocket Wheel 22 is connected by Chain to Sprocket Wheel 10, then the top of the base frame is enclosed. We used ten  $9\frac{1}{2} \times 2\frac{1}{2}$  in. Strip Plates, four  $7\frac{1}{2} \times 2\frac{1}{2}$  in. Strip Plates 23, two  $5\frac{1}{2} \times 1\frac{1}{2}$  in. Flexible Plates

24 and one  $2\frac{1}{2} \times 1\frac{1}{2}$  in. Flexible Plate 25, all arranged as shown.

This brings us to the actual revolving section of the model which should present no difficulty. A "wheel" is built up from a  $3\frac{1}{2}$  in. Gear Wheel 26, to which eight radiating  $5\frac{1}{2}$  in. Angle Girders 27 are tightly fixed by  $\frac{1}{2}$  in. Bolts, each Girder being spaced from the Gear by a Collar on the shank of the securing Bolt. A  $9\frac{7}{8}$  in. Flanged Ring 28 is bolted to the Girders through their fourth holes from the outer ends, then a wheel-rim 29 is provided by eight  $5\frac{1}{2}$  in. Strips, gently curved to shape and attached to the ends of the Girders by Angle Brackets. The completed wheel is secured by the boss of Gear 26 to a  $6\frac{1}{2}$  in. Rod mounted free in Double Arm Cranks 16 and 17. A Collar on the Rod above Crank 16 holds the Rod in place. Gear Wheel 26, of course, meshes with the  $\frac{1}{2} \times \frac{1}{2}$  in. Pinion on the nearby Motor output shaft and the Motor should be adjusted on its Screwed Rod mountings to ensure perfect engagement.

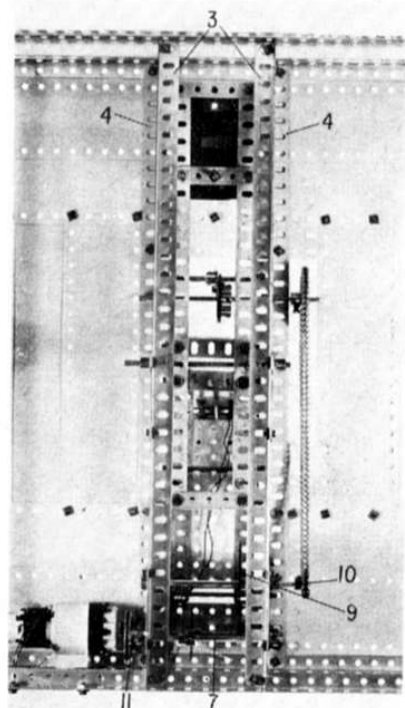
Suspended from the wheel-rim are eight chairs, all similarly built up from a  $2\frac{1}{2} \times 1\frac{1}{2}$  in. Flanged Plate, to the flanges of which two  $1\frac{1}{2} \times 1\frac{1}{2}$  in. Flat Plates 30 are bolted. The upper rear corners of the Plates are connected by a  $2\frac{1}{2} \times \frac{1}{2}$  in. Double Angle Strip to which a  $2\frac{1}{2} \times 1\frac{1}{2}$  in. Flexible Plate is bolted to serve as a chair back, while a  $2\frac{1}{2}$  in. Flat Girder 32 is attached by Obtuse Angle Brackets to the forward edge of the



Left, a close-up view of the initial drive system for the roundabout tilting movement.

Right, an under-side view of the base assembly showing the Motor with Gearbox which provides drive for the tilting movement of the roundabout.

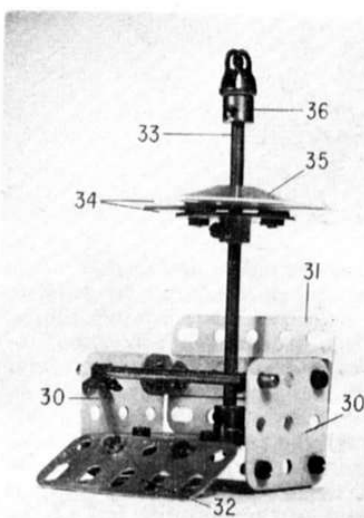
Below, a close-up view of one of the eight identical passenger cars, removed from the model.



**Flanged Plate.** A guard rail is supplied by a 3 in. Rod held by Spring Clips in the upper forward corner holes Flat Plates 30.

Fixed in the rear row centre hole of the Flanged Plate is a Rod Socket in which a 4 in. Rod 33 is held. Secured part-way up this Rod is an 8-hole Bush Wheel, to the face of which two Semi-circular Plates 34 are bolted, being spaced from the Bush Wheel by a Washer on the shank of each securing Bolt. A loose Conical Disc 35 is positioned on top of the semi-circular Plates, then an End Bearing 36 is secured on the upper end of the Rod. Pivotaly held in the lugs of this End Bearing is a Hinge, the upper lug of which is secured to the wheel-rim, as shown.

Finally, a set of access steps for the model is provided by two 6½ in. compound strips 37 bolted, along with two 5 in. compound strips 38, to the lugs of a 2½ × ½ in. Double Angle Strip fixed to one lower Angle Girder 1 in the position shown. The outer end of each Strip 38 is connected to the fifth hole down of Strip 37 by a 6½ in. compound strip 39, the upper securing Bolt holding



an Angle Bracket in place and the lower Bolt holding a 2½ in. Narrow Strip. The Bracket is fixed to upper Girder 1, while the upper end of the Narrow Strip is attached to the upper end of compound strip 37 by a 6½ in. compound narrow strip 40 which serves as a handrail. An

additional support is provided by a second 2½ in. Narrow Strip 41, then, last of all, the step treads are supplied by six 2½ × ½ in. Double Angle Strips bolted as shown between compound strips 39.

PARTS REQUIRED			
16-2	2-15a	128-38	10-111c
2-2a	9-15b	15-48a	8-114
4-3	3-16	8-51	1-130
7-5	8-16a	3-53a	8-166
12-7a	1-21	25-59	1-167b
2-8	1-23a	3-62	8-179
2-8b	8-24	4-62b	8-187a
10-9	1-26	1-70	9-188
6-9a	1-26a	17-74	2-189
6-9d	1-26c	5-81	4-195
10-12	1-27b	1-94	10-196
16-12a	1-27c	1-95	16-214
1-14	16-35	1-96a	4-235
1-14a	342-37a	8-103f	4-235f
2-15	302-37b	2-108	2 Motors
		8-111a	with
			Gearbox

## TRACTOR DRIVER (continued from opposite page)



he will have to be prepared to work in the evenings or at week-ends. While he never gets rich, he often enjoys his work because he feels well respected. After all, he has to work without supervision, and is in charge of machinery that may have cost £4,000 or more. When he knows the farm work inside out he could become a farm manager.

Other drivers leave the farm itself for contract driving which is more demanding but usually better paid. Many big contractors today started as drivers. It is one way to get a foot onto the farming ladder.

A line-up of Leyland tractors, models 384, 344, 253, & 154, with b.h.p. of 70, 55, 47, & 25 respectively.