

All the fun of the fair!

# A GIANT ROUNDABOUT

**F**AIRGROUNDS, no doubt, seem a long way removed from reality just now, yet the model described here should bring back some memories—happy or otherwise—from the past. It is built mainly with standard Meccano parts, although there are a few Elektrikit parts used to complete the lighting circuit, which is arranged so that the lamps flash on and off as the giant roundabout revolves. You will see that 12 lamps are used and, as they are wired in series, their voltage should be 2.5 each. If you do not have any spare lamps, the four 12-volt ones contained in the Elektrikit can be used in Lamp Holders, but in that case they should be wired in parallel. If they were wired in series, their combined

resistance to the current would probably be too great, as science or physics students will know.

The first illustration below may give the impression that the model is very intricate in construction, but it is really quite easy to build.

## SUPERSTRUCTURE

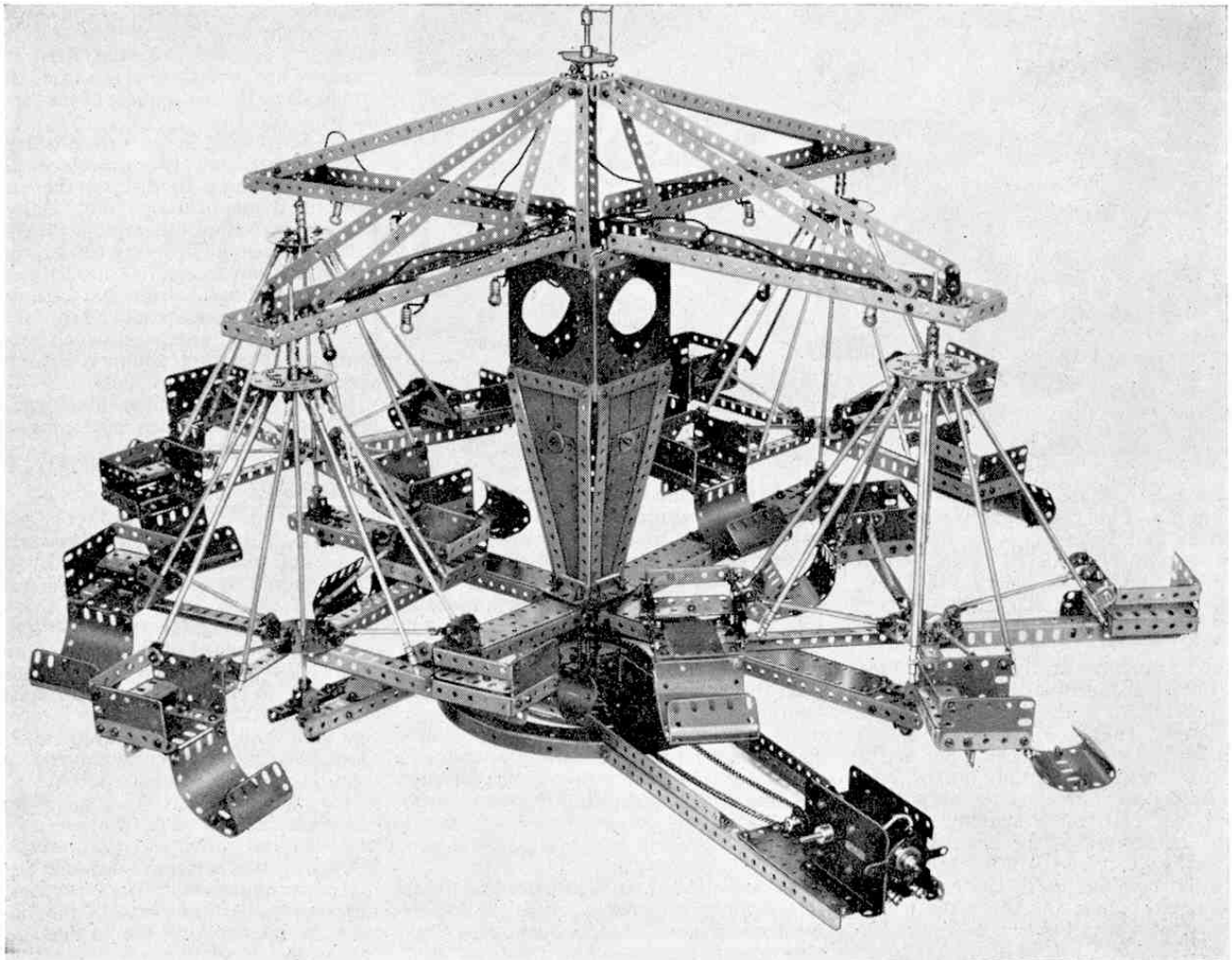
Four upright  $4\frac{1}{2}$ " Angle Girders 1 are

The huge Roundabout described in this article makes use of several Elektrikit parts.

joined together at the top by four  $3\frac{1}{2}$ " Angle Girders 2, and at the bottom by  $3\frac{1}{2}$ " Strips 3. The  $4\frac{1}{2}$ " Angle Girders are extended with  $7\frac{1}{2}$ " Strips 4, which are joined together in pairs by  $1\frac{1}{2}$ " Angle Girders 5. Each side has four  $2\frac{1}{2} \times 2\frac{1}{2}$ " Flexible Gusset Plates 6 bolted to the  $4\frac{1}{2}$ " Angle Girders 1. The space between each set of  $7\frac{1}{2}$ " Strips is filled in by two  $2\frac{1}{2} \times 1\frac{1}{2}$ " Triangular Flexible Plates and a  $5\frac{1}{2} \times 1\frac{1}{2}$ " Flexible Plate, a large Washer being placed on the centre bolt shank.

$5\frac{1}{2}$ " Strips 7 are bolted to the corners of the structure and are then secured as shown to four  $1\frac{1}{2}$ " Angle Girders 8, across which is bolted a Double Arm Crank 9. These Angle Girders also carry Double Brackets 41.

Two  $12\frac{1}{2}$ " Angle Girders 10 are fastened to each of the  $3\frac{1}{2}$ " Angle Girders 2 by



A general view of the Roundabout with the rotating chairs removed, showing the main pillar and superstructure.

Fishplates, and a  $9\frac{1}{2}$ " Braced Girder is bolted between them. A 2" Angle Girder 11 and a 2" Strip with a 1" Corner Bracket 60 attached are bolted to the Angle Girders 10. This whole arrangement is then supported by  $12\frac{1}{2}$ " Strips 12 attached to the Double Brackets 41 and to the  $12\frac{1}{2}$ " Angle Girders 10 by Fishplates.

The  $1\frac{1}{2}$ " Angle Girders 5 are secured to a  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flat Plate 42, one nut and bolt only being used with each Girder.

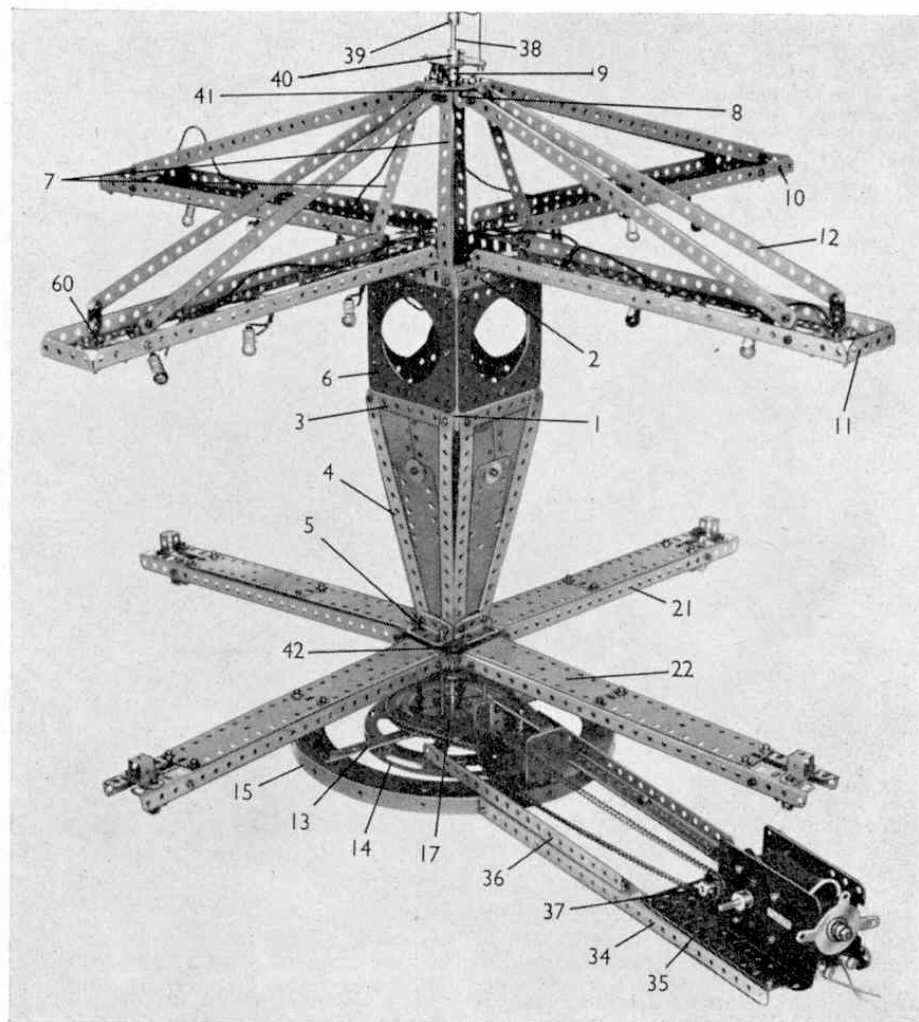
#### BASE AND DRIVE

Two  $9\frac{1}{2}$ " Strips 13, to which a Hub Disc 14 is attached, are bolted at right angles across a Flanged Ring 15. In the centre a Ball Race Flanged Disc with a Bush Wheel underneath, is secured, and a  $11\frac{1}{2}$ " Rod 16 is fastened in the boss of the Bush Wheel. A Ball Thrust Race Toothed Disc 17 with a Bush Wheel in the centre and four  $3\frac{1}{2}$ " Screwed Rods 18 attached to it by two nuts on each Rod, is placed with

### By "SPANNER"

the Ball Cage in position on the  $11\frac{1}{2}$ " Rod, a Collar 19 holding the race together. A  $1\frac{1}{2}$ " Contrate Wheel 20 is secured to the  $11\frac{1}{2}$ " Rod by two Grub Screws.

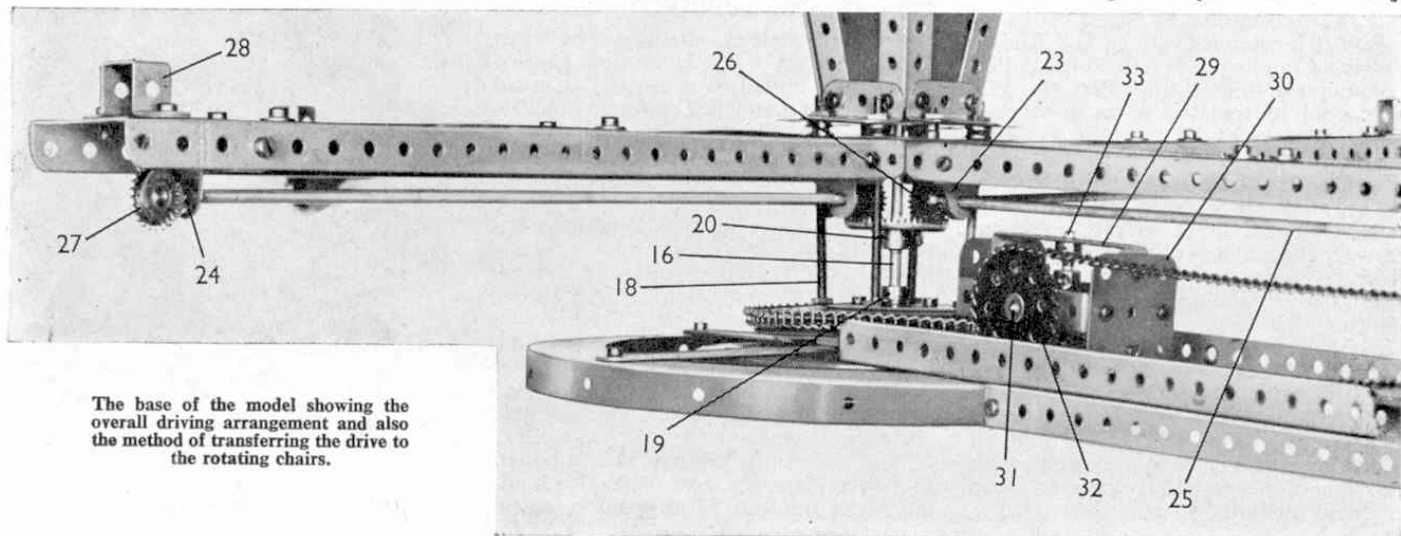
Four pairs of  $12\frac{1}{2}$ " Angle Girders 21 are then bolted to a  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flat Plate, one secured by one of the Screwed Rods and two nuts, and the other by a nut and bolt. Two  $5\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plates 22 are bolted to each pair of Angle Girders 21, and two  $1\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips supporting 1" Corner Brackets 23 and 24 are secured to the Angle Girders 21 to form the bearings for an  $11\frac{1}{2}$ " Rod 25. This Rod carries a  $\frac{1}{2}$ " Pinion 26 and a  $\frac{3}{4}$ " Contrate Wheel 27. A Double Bent Strip 28 overlying a  $1\frac{1}{2}$ " Strip is bolted to the Angle Girders 21. Washers and a nut are now



placed on each of the Screwed Rods 18, and the  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flat Plate of the superstructure is lowered into position, and fastened down with another nut on each Screwed Rod.

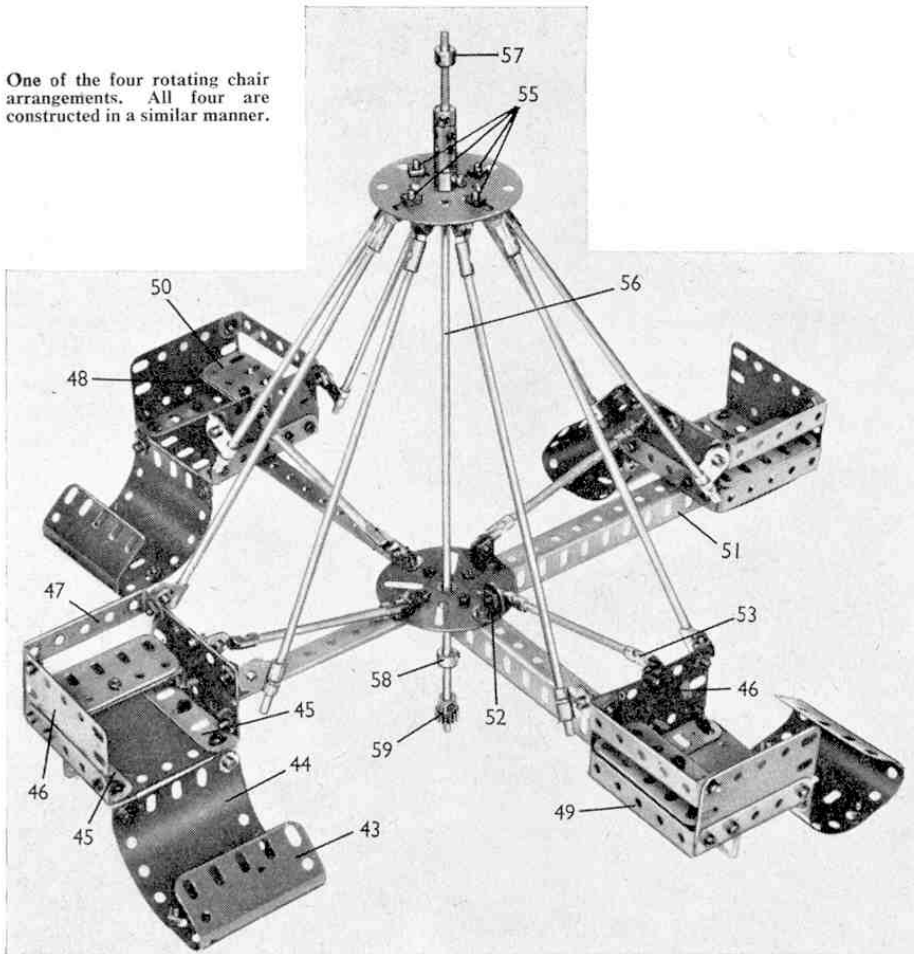
Four  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips 29 are bolted between two  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flat Plates 30, the lower one being secured to

the  $9\frac{1}{2}$ " Strip 13. A  $2\frac{1}{2}$ " Rod 31, passed through two of the Double Angle Strips carries a  $1\frac{1}{2}$ " Sprocket Wheel 32 and a Worm Wheel that engages with a  $\frac{1}{2}$ " Pinion on a 2" Rod 33. A  $\frac{3}{4}$ " Sprocket on Rod 33 is secured in line with the Ball Thrust Race Toothed Disc, and the two are connected together by chain. Two  $12\frac{1}{2}$ "



The base of the model showing the overall driving arrangement and also the method of transferring the drive to the rotating chairs.

One of the four rotating chair arrangements. All four are constructed in a similar manner.



Angle Girders 34 are fixed to the Flanged Ring by Angle Brackets, and they are joined at their other ends by a  $5\frac{1}{2}'' \times 3\frac{1}{2}''$  Flat Plate 35. Angle Girders 36 are bolted to the Hub Disc and the  $12\frac{1}{2}''$  Angle Girders 34, after which the E15R Motor is fixed in position as shown. A  $\frac{1}{8}''$  Pinion is fitted on the Motor shaft to engage with a 60-tooth Gear Wheel on a  $3\frac{1}{2}''$  Rod which has a  $\frac{3}{4}''$  Sprocket Wheel 37 secured on it. The Sprocket Wheels 32 and 37 are connected by Chain.

Rod 16 is extended with an  $11\frac{1}{2}''$  Rod 38 held in a Coupling fixed to Rod 16. A Flat Commutator 40 (Elektrikit Part No. 551) is secured to the Rod so as to touch a Wiper Arm (Elektrikit Part No. 533) that is bolted to a  $2\frac{1}{2}''$  Insulating Strip attached to one corner of the Angle Girder 8.

The lamps are wired in series, the wire being soldered direct to the lamps, as shown. The stiffness of the wire serves to hold the lamps in position. One input wire is fixed to a Rod Socket 39 on Rod 38, and the other goes to one terminal of the Commutator. The Lamp Wire is taken from the Wiper Arm, care being taken that it is insulated from the metal of the model, through the various lamps, and then is "earthed". This means that an electrical contact is made somewhere with the metal of the model. It can be attached to any of the bolts.

The electrical circuit for the lamps is easy to follow. The current enters through the Commutator, is picked up by the Wiper Arm, passes along the Wire and through the lamps, from where it is "earthed", finally returning to the power source through the Wire attached to Rod Socket 39. The power source for the lamps, incidentally, does not need to be the same as that for the Motor.

#### CHAIRS AND SUPPORTS

Each of sixteen chairs is built as follows: A  $2\frac{1}{2}'' \times 2\frac{1}{2}''$  U section Curved Plate 43 is bolted to a  $2\frac{1}{2}'' \times 2\frac{1}{2}''$  Curved Plate 44, and is attached by Angle Brackets to a  $2\frac{1}{2}'' \times 2\frac{1}{2}''$  Flexible Plate that has  $2\frac{1}{2}''$  Angle Girders 45 bolted to each side. Attached to the upright flanges of the Angle Girders are  $2\frac{1}{2}'' \times 1\frac{1}{2}''$  Flexible Plates 46. Three  $2\frac{1}{2}'' \times \frac{1}{2}''$  Double Angle Strips 47, 48 and 49 are bolted between the  $2\frac{1}{2}'' \times 1\frac{1}{2}''$  Flexible Plates, and Double Angle Strip 48 supports a  $2\frac{1}{2}''$  Flat Girder 50 which forms the seat. Three Angle Brackets are secured to the outside of the inside Flexible Plate, two having Right Angle Rod and Strip Connectors bolted to them, and the centre one carrying a Rod and Strip Connector 53.

Four  $7\frac{1}{2}''$  Angle Girders 51 are bolted to a Face Plate, the outer bolts also holding Angle Brackets 52 in position, and a

"chair" is then attached to the end of each Angle Girder. Rod and Strip Connectors are bolted to the Angle Brackets 52, and these are connected to the Rod and Strip Connectors 53 by  $3\frac{1}{2}''$  Rods.

Eight Angle Brackets are fixed to another Face Plate by four Bolts 55, two Angle Brackets being held by each bolt, and a further Rod and Strip Connector is bolted to each Angle Bracket.  $8''$  Rods are fixed to these Rod and Strip Connectors and also the Right Angle Rod and Strip Connectors on the chairs. Both Face Plates are secured to an  $11\frac{1}{2}''$  Rod 56 that is extended by a  $1\frac{1}{2}''$  Rod in a Coupling. When the completed assembly is fitted in position in the main superstructure by journalling Rod 56 in Double Bent Strip 28 and the apex hole of  $1''$  Corner Bracket 60, the Collars 57 and 58 hold it in place so that a  $\frac{1}{2}''$  Pinion 59 on the Rod meshes with the  $\frac{3}{4}''$  Contrate Wheel 27.

*Parts required to build the Roundabout;* 8 of No. 1; 2 of No. 1a; 8 of No. 1b; 4 of No. 2; 8 of No. 3; 8 of No. 6; 4 of No. 6a; 18 of No. 8; 2 of No. 8a; 16 of No. 8b; 4 of No. 9a; 4 of No. 9b; 32 of No. 9d; 4 of No. 9e; 8 of No. 9f; 17 of No. 10; 20 of No. 11; 98 of No. 12; 10 of No. 13; 32 of No. 13a; 17 of No. 16; 1 of No. 16a; 5 of No. 17; 2 of No. 24; 5 of No. 26; 5 of No. 26c; 1 of No. 27d; 1 of No. 28; 4 of No. 29; 1 of No. 32; 738 of No. 37a; 714 of No. 37b; 96 of No. 38; 4 of No. 38d; 4 of No. 45; 1 of No. 47; 8 of No. 48; 51 of No. 48a; 1 of No. 52a; 13 of No. 59; 1 of No. 62b; 5 of No. 63; 2 of No. 72; 2 of No. 74; 4 of No. 77; 4 of No. 80a; 1 of No. 94; 1 of No. 95a; 2 of No. 96a; 4 of No. 99; 16 of No. 103f; 8 of No. 109; 6 of No. 111c; 1 of No. 118; 8 of No. 133a; 1 of No. 167a; 1 of No. 168; 1 of No. 179; 32 of No. 188; 12 of No. 189; 16 of No. 190; 16 of No. 199; 16 of No. 200; 16 of No. 201; 64 of No. 212; 32 of No. 212a; 8 of No. 225; 1 of No. 503; 1 of No. 533; 1 of No. 551; 1 E15R Electric Motor; twelve 2.5v lamps if connected in series, or several 12v Lamps and a corresponding number of Lamp Holders if connected in parallel.



"Let's make it a leap year, hoppy!"