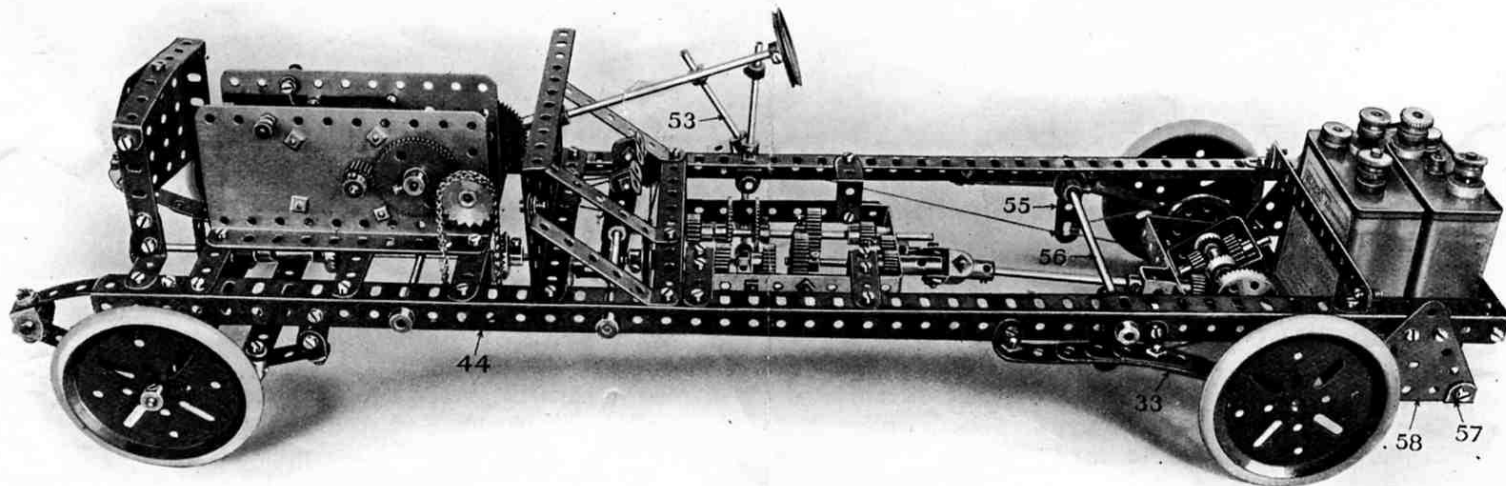


PRICE 3d.

# THE Meccano Motor Chassis

## MODEL 429.



Chassis driven by Meccano Electric Motor

**B**EGIN by making up the chassis frame, the sides 1 of which are  $24\frac{1}{2}$  in. angle girders connected by  $5\frac{1}{2}$  in. strips 2. The front steering axles 3 and their springs 4 may then be built on to the frame as shown in Fig. 429b. The stub axles 3 are fitted into the couplings 5 and swivel in 1 in. reversed angle brackets 6 which are bolted to two overlapped  $5\frac{1}{2}$  in. strips in order to give a projecting end hole on each side to form a bearing for the couplings

the drive from the  $\frac{1}{2}$  in. pinion 27. The outer frame 28 consists of a 3 in. by  $1\frac{1}{2}$  in. bent strip, and the inner frame 23 is distanced by a collar 29 and a washer 30. The universal joint is made of two reversed double angle brackets 31 connected to the couplings by a  $\frac{3}{4}$  in. bolt with packing nuts 32 between.

The rear springs 33 (Fig. 429f), are first connected to double bent strips 34 which are threaded on the rear axles and bolted to the side frames, the rear wheels being then secured to the axle.

Now construct the gear box (Fig. 429d), beginning with the frame, the longer sides of  $4\frac{1}{2}$  in. strips bolted to  $2\frac{1}{2}$  in. by 1 in. bent strips at each end and bolt on the 1 in. angle brackets 35 on each side. On the 8 in. rod 36 a brake pulley 37 is fitted. Insert the rod 36 into the angle bracket 38 and fit on the two  $\frac{3}{4}$  in. pinions 39 and 39a, and the 50 toothed gear wheel 40. The bevel pinion 41 takes the drive from the motor, engaging the bevel 41a (Fig. 429b); and the  $\frac{3}{4}$  in. contrate wheel 42 is driven from the starting handle. The clutch mechanism 43 is merely ornamental. The bevels 41, 41a, are driven by the sprocket 44 from the motor, see Figs. 429 and 429a. The 2 in. rods for the sprocket 44 and bevel 41a are mounted in the end holes of 1 in. angle brackets secured to one of the  $5\frac{1}{2}$  in. cross strips.

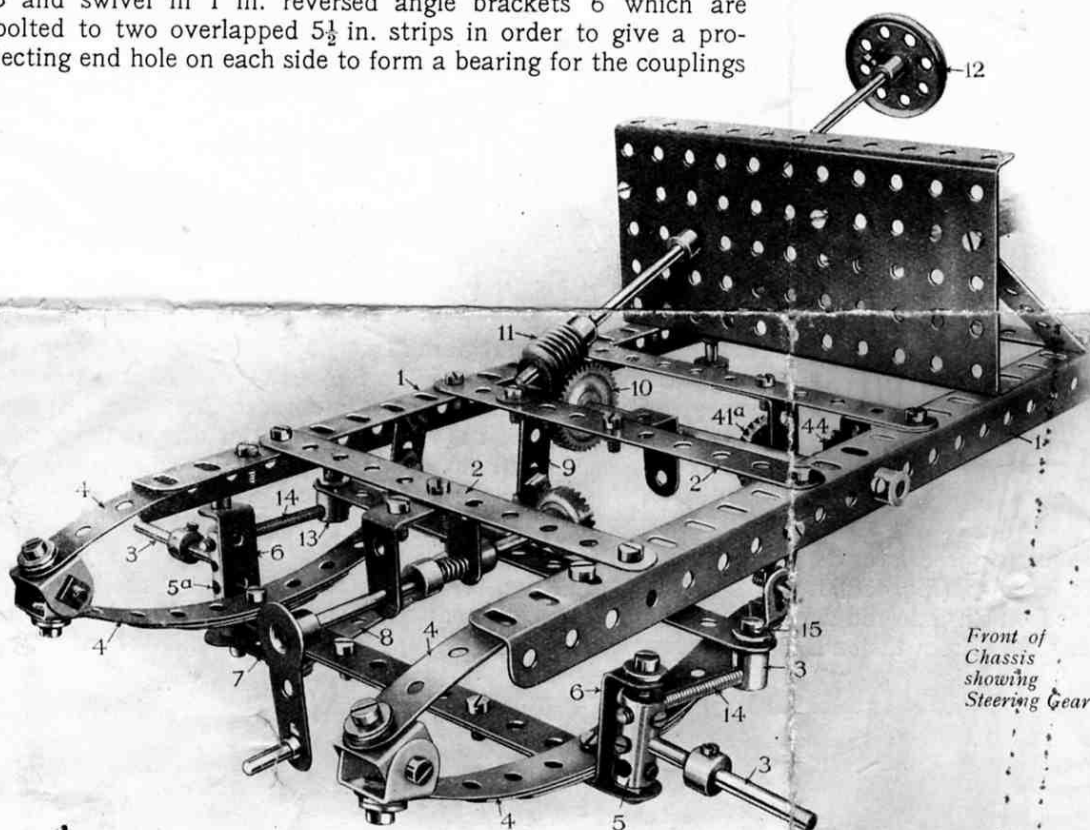


Fig. 429b.

5. These  $5\frac{1}{2}$  in. strips also support the springs 4. The couplings 5 are moved to steer the car by means of a 1 in. rod which is gripped in the lower part of the coupling 5a and fitted with a crank 7 connected by a strip 8 to another  $1\frac{1}{2}$  in. strip secured to a crank 9 on the rod of a gear wheel 10, which is rotated by a worm 11 from the steering wheel 12. The strip 8 is connected to the crank 9 extension by an angle bracket lock nutted to give free pivotal movement. The wheels are caused to turn together by nipping the 2 in. threaded rods 14 into the couplings 5 and 5a by screws, the outer ends of the two threaded rods screwing into threaded bosses 13 connected to the outer ends of  $5\frac{1}{2}$  in. and  $2\frac{1}{2}$  in. strips overlapped three holes. The bosses are coupled to the strips by screws 15 threaded into the bosses with washers beneath.

Then proceed to build up the differential mechanism of the rear wheels as shown in Fig. 429c. The  $3\frac{1}{2}$  in. and 5 in. axle rods 16, 17 are in two parts which abut in and revolve freely in the coupling 18, and the contrate pinions 19, 20, are nipped on with set screws. The  $\frac{3}{4}$  in. pinions 21 are nipped on 1 in. rods, 22, for which the middle hole of the coupling forms a bearing. The frame 23 is made from two  $1\frac{1}{2}$  in.  $\times$   $\frac{1}{2}$  in. bent strips and two  $1\frac{1}{2}$  in. strips. If it is found that the frame binds against the bosses of the contrate wheels, it may be pressed out to ease it. The  $1\frac{1}{2}$  in. pulley wheels 24 on the rods 16, 17, are for the brake cords. 1 in. threaded rods 25 hold the frame 23 to the  $1\frac{1}{2}$  in. contrate wheel 26 which takes

The lay shaft 45 is then inserted, and the  $\frac{3}{4}$  in. pinion 46, two 50 teeth gears 47 and 47a, 1 in. pinion 48 and  $\frac{1}{2}$  in. pinion 49 are left loose on the shaft preparatory to the final adjustments. The driver shaft 50 is then inserted and its  $\frac{1}{2}$  in. pinion

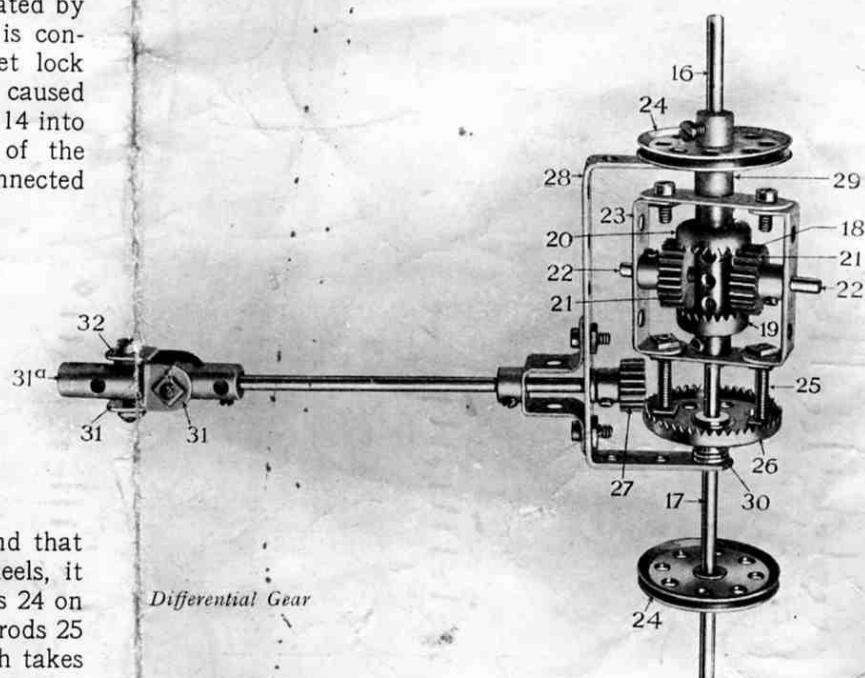
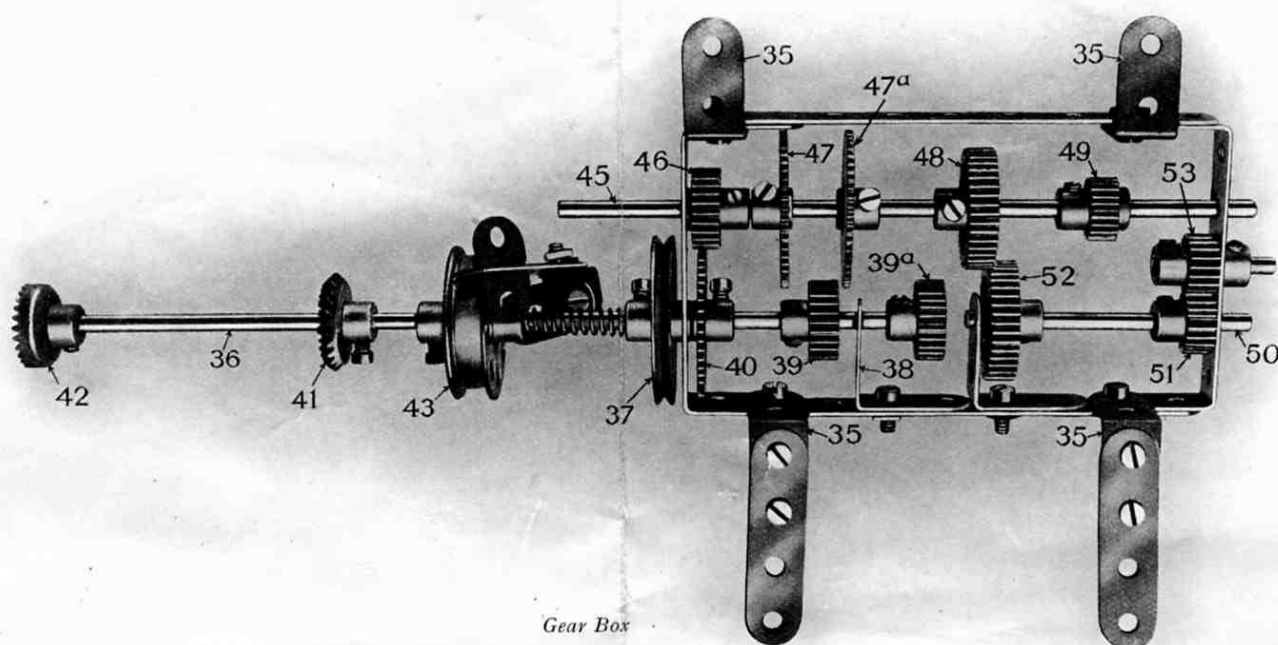


Fig. 429c.

# The Meccano Motor Chassis.



Gear Box

Fig. 429d.

51 and 1 in. gear 52 then nipped on. A  $\frac{1}{2}$  in. pinion 53 is pivoted on a 1 in. rod with collar and set screw. The coupling 31a (Fig. 429c) is then connected to the projecting end of the shaft 50.

of these cranks the brake cords are carried round the brake drums 24. The change speed lever 54 is fitted at the lower end with a coupling 55 (Fig. 429e) carrying a 2 in. rod on which is a collar 55a engaging between the gear wheels 47 and 47a. By moving

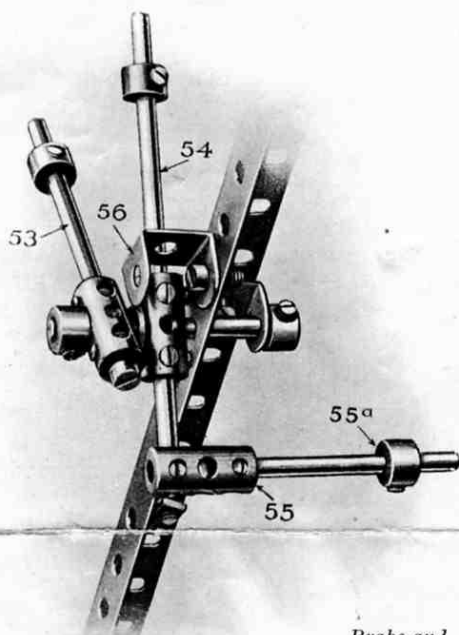
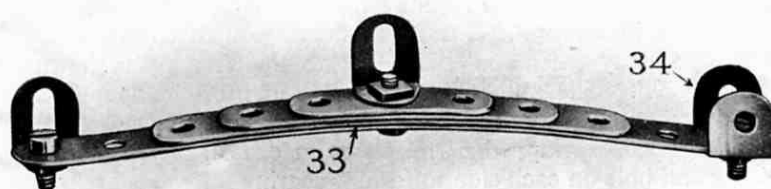
Brake and  
Change Speed  
Levers

Fig. 429e.

Then bolt the brake lever 53 and change speed lever 54, (Fig. 429e), to the side frame. The brake lever 53, (Fig. 429), is connected by a cord to a crank 55 nipped on an axle rod 56 which carries a similar crank at the other side. From the ends



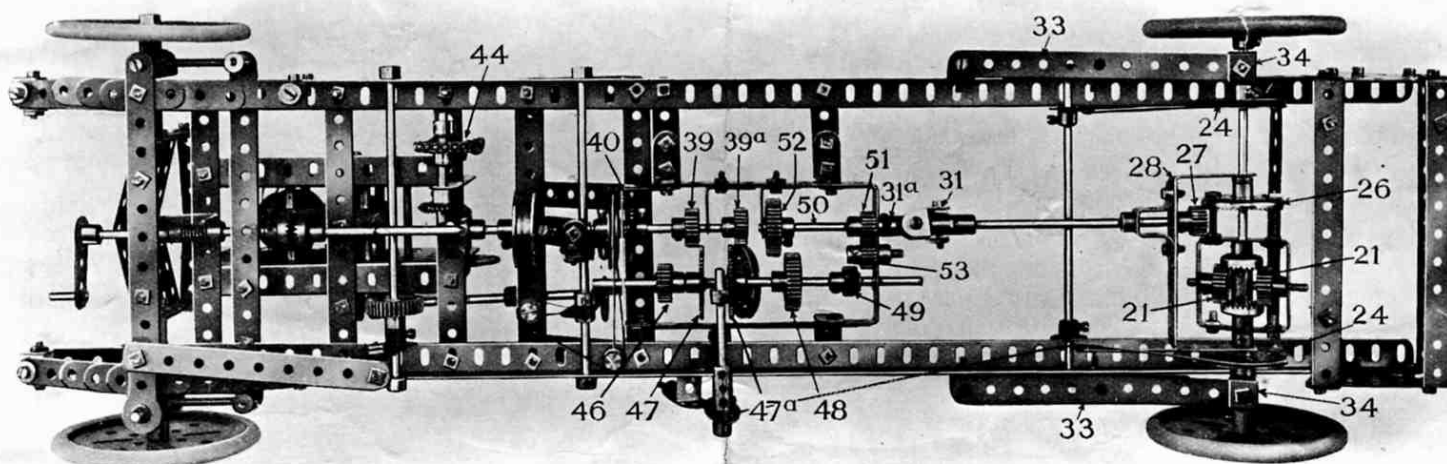
Rear Spring

Fig. 429f.

the lever 54 the shaft 45 slides and the changes of speed are controlled. When in top gear the pinion 46 engages the gear wheel 40 and the pinions 48 and 52 are engaged. For slow speed the gear 47 engages the pinion 39 and the pinions 48 and 52 are still engaged. For a reverse the gear 47a engages the pinion 39a and the pinions 49 and 53 are engaged, the latter driving the pinion 51 on the rear shaft 50.

A double bracket 56 (Fig. 429e), is bolted to the side frame to act as a stop for the levers.

As shewn in Fig. 429, the motor is bolted at the front of the chassis on the  $5\frac{1}{2}$  in. cross strips, and the 4 volt accumulators from lower cross strips 57 supported by triangular pieces 58.



Under View of Chassis

Fig. 429a.

## PARTS REQUIRED.

12 5 1/2" Perforated Strips	1 4 1/2" Axle Rods	4 3/4" Contrate Wheels	5 Cranks
3 4 1/2" " "	1 3 1/2" " "	2 Bevel Gear Wheels	8 Couplings
7 3 1/2" " "	4 2 1/2" " "	1 Worm Wheel	2 Threaded Bosses
3 3" " "	3 2" " "	90 Nuts and Bolts	2 2 1/2" Triangular Plates
2 2 1/2" " "	2 1 1/2" " "	12 Nuts	2 2" Screwed Rods
2 2" " "	7 1" " "	1 2" Spring	2 1" " "
6 1 1/2" " "	1 Flanged Wheel	1 Double Bent Strip	2 1" Sprocket Wheels
2 2 1/2" Angle Girders	4 3" Pulley Wheels	2 1 1/2" x 1 1/2" Double Angle Strips	2 3/4" Bolts
3 Flat Brackets	4 1 1/2" " (fast)	1 3 1/2" x 1 1/2" " " "	1 Threaded Pin
10 Double " "	2 1 1/2" " (fast)	3 5 1/2" x 1 1/2" " " "	2 Pivot Bolts
18 Angle " "	1 Bush Wheel	3 2 1/2" x 1" " " "	29 Washers
12 1" Angle " "	5 3/4" Pinion Wheel	1 3" x 1 1/2" " " "	3 1" Gear Wheels
2 8" Axle Rods	4 3" " "	1 5 1/2" x 2 1/2" Flanged Plates	1 Hank of Cord
4 6" " "	3 50 Toothed Gear Wheels	1 3 1/2" x 2 1/2" " "	4 3" x 1/4" Rubber Rings
1 5" " "	1 1 1/2" Contrate Wheel	24 Collars	9 Sprocket Chain
			2 1" Reversed Angle Brackets

MECCANO LTD., Head Office and Factory: LIVERPOOL, England