

## Parts Required

### To build the Meccano Auto Chassis

After you have built the Meccano Auto Chassis as described in this folder you will no doubt want to try to improve it. There are several ways in which this can be done, and we mention only two of them below as suggestions. We shall be glad to have Meccano boys write and tell us of any alterations and improvements which they may make to the design of the chassis.

### Substituting the Torque Converter

The recent invention of the Torque Converter will be of interest to all who build the Meccano Auto Chassis. This remarkable device takes the place of the gear-box and does away with the need of gear-shifting to get various speeds.

The converter was illustrated and a Meccano model of it was fully described in the March and May, 1925, issues of the "Meccano Magazine." Copies may be obtained at 5 cents each.

The Meccano model of the converter can be built into the Auto Chassis without difficulty, and it will add greatly to the interest of the model. It makes a splendid demonstration of the marvel of this great invention.

### Adding a Body

You will probably want to put a body on your chassis after it is completed, and we offer as a suggestion the limousine body illustrated here. Instructions for building this body will be published shortly in the "Meccano Magazine." Sedan, truck and open-car bodies can also be mounted on the Chassis, and Meccano boys will not be slow to exercise their ingenuity building special bodies to suit their requirements.



The Meccano Limousine

## Instructions for Other Special Models

Instructions for special models are published from time to time and we show below some of the models for which these are now available.

In addition to those illustrated, interesting new models are described in every issue of our boys' paper, the "Meccano Magazine." If you are not a regular reader of this paper, write for a free sample copy.

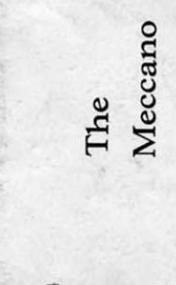
### Hydraulic Crane



This model illustrates the principle of Hydraulic Cranes, which make use of water-power to raise the load. Screws are used in the model instead of water-power to move the hoisting cords. Fully illustrated and described in the March, 1925, "Meccano Magazine." Price 5 cents, post free 6 cents.

### The Meccano Clock

The Meccano Clock is not a model, but a full-sized grandfather's clock, which stands over six feet high and keeps perfect time. If carefully constructed and adjusted, it will give good service for a long time. Special instructions for building this remarkable clock cost 10 cents each.



The Meccano Clock

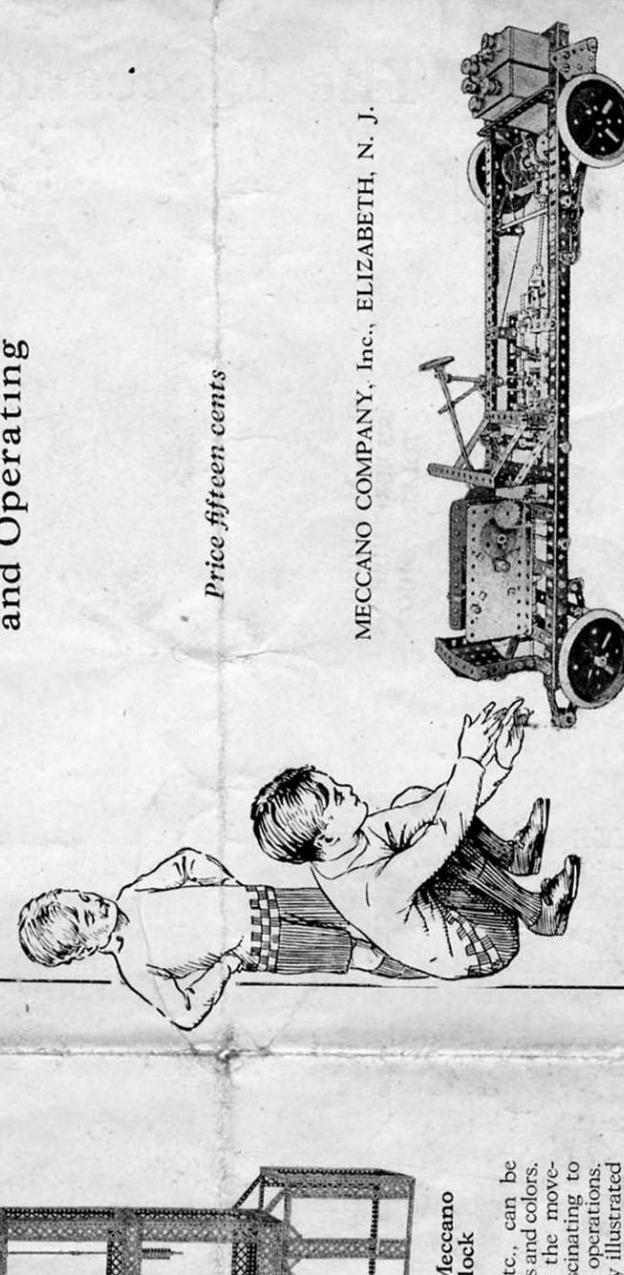
This Clock is not a toy, but a real weaving Loom, with which hats-bands, ties, belts, etc., can be woven in an endless variety of patterns and colors. The entire mechanism is actuated by the movement of a crank-handle, and it is fascinating to watch the various parts perform their operations. Instructions for building the Loom, fully illustrated with large detail views, are available at a cost of 10 cents per copy.

## The Meccano Auto Chassis

Model No. 701

12 5 1/2" Perforated Strips	4 3/4" Contrate Wheels
3 4 1/2" Perforated Strips	2 Bevel Gear Wheels
7 3 1/2" Perforated Strips	1 Worm Wheel
3 3" Perforated Strips	8 Nuts
7 2 1/2" Perforated Strips	90 Nuts and Bolts
2 2" Perforated Strips	1 2" Spring
6 1 1/2" Perforated Strips	1 Double Bent Strip
2 24 1/2" Angle Girders	2 1 1/2" x 1/2" Double Angle Strips
3 Flat Brackets	1 3 1/2" x 1/2" Double Angle Strip
8 Double Brackets	3 5 1/2" x 1/2" Double Angle Strips
18 Angle Brackets	3 2 1/2" x 1" Double Angle Strips
11 1" Angle Brackets	1 3" x 1 1/2" Double Angle Strip
2 8" Axle Rods	1 5 1/2" x 2 1/2" Flanged Plate
4 6" Axle Rods	1 3 1/2" x 2 1/2" Flanged Plate
1 5" Axle Rod	24 Collars
1 4 1/2" Axle Rod	5 Cranks
2 3 1/2" Axle Rods	6 Couplings
5 2 1/2" Axle Rods	2 Threaded Bosses
3 2" Axle Rods	2 2 1/2" Triangular Plates
5 1" Axle Rods	2 2" Screwed Rods
1 Flanged Wheel	2 1" Screwed Rods
4 3" Pulley Wheels	2 1" Sprocket Wheels
4 1 1/2" Pulley Wheels (fast)	1 Threaded Pin
2 1/2" Pulley Wheels (fast)	2 Pivot Bolts
1 Bush Wheel	29 Washers
6 3/4" Pinion Wheels	4 3" x 1/4" Rubber Rings
4 1/2" Pinion Wheels	2 1" Reversed Angle Brackets
4 50 Toothed Gear Wheels	1 Hank Cord
1 56 Toothed Gear Wheel	9" Sprocket Chain
3 1" Gear Wheels	1 Universal Coupling
1 1 1/2" Contrate Wheel	1 E2 Meccano Motor

Most Meccano dealers carry these and other Meccano parts. However, if you cannot obtain what you want from your dealer, let us know your requirements and we will see that you are supplied.



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# The Meccano Auto Chassis

Model No. 701

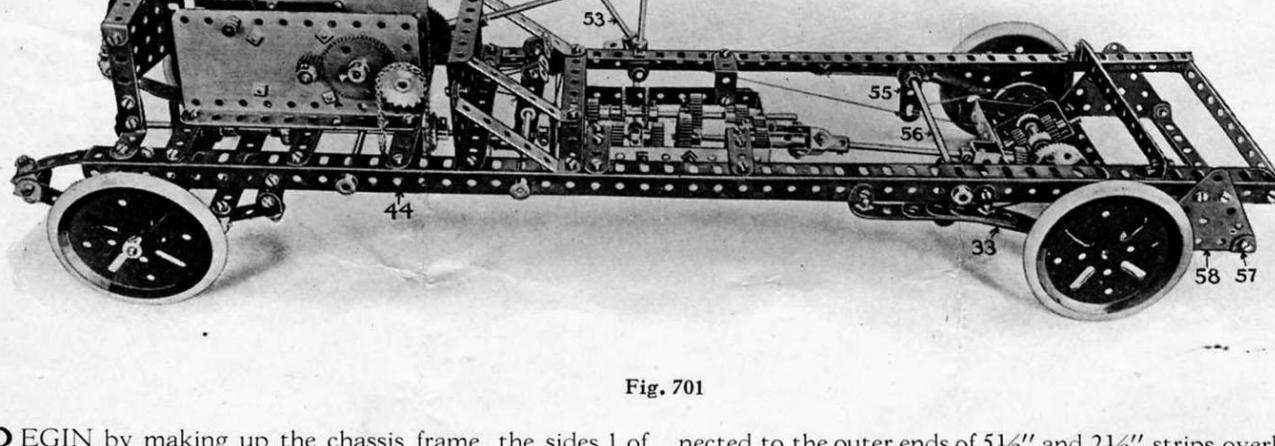


Fig. 701

**B**EGIN by making up the chassis frame, the sides 1 of which are  $2\frac{1}{2}$ " angle girders connected by  $5\frac{1}{2}$ " strips 2. The front steering axles 3 and their springs 4 may then be built on to the frame as shown in Fig. 701B. The stub axles 3 are fitted into the couplings 5 and swivel in 1" reversed angle brackets 6 which are bolted to two overlapped  $5\frac{1}{2}$ " strips in order to give a projecting end

hole on each side to form a bearing for the couplings 5.

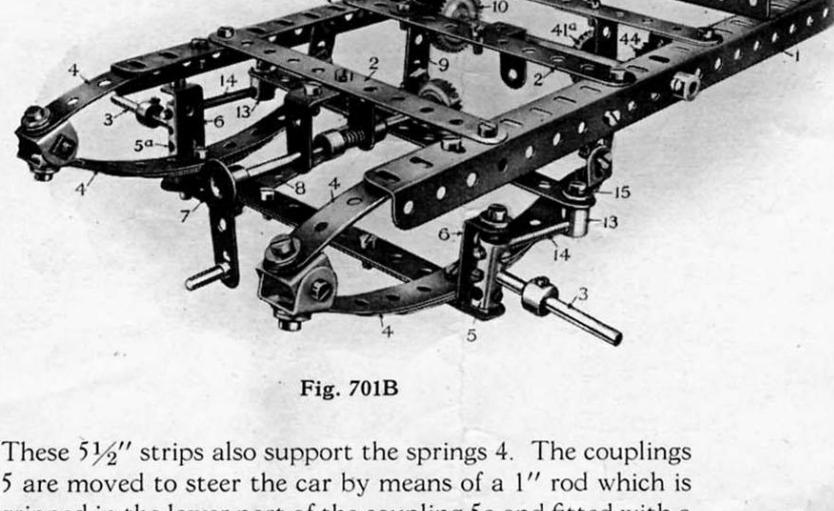


Fig. 701B

These  $5\frac{1}{2}$ " strips also support the springs 4. The couplings 5 are moved to steer the car by means of a 1" 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  $1\frac{1}{2}$ " 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" threaded rods 14 into the couplings 5 and 5a by screws, the outer ends of the two threaded rods screwing into threaded bosses 13 con-

nected to the outer ends of  $5\frac{1}{2}$ " and  $2\frac{1}{2}$ " 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. 701C. The  $3\frac{1}{2}$ " and 5" 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  $\frac{3}{4}$ " pinions 21 are nipped on 1" rods, 22, for which the middle hole of the coupling forms a bearing. The frame 23 is made from two  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " bent strips and two  $1\frac{1}{2}$ " 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  $1\frac{1}{2}$ " pulley wheels 24 on the rods 16, 17, are for the brake cords. 1" threaded rods 25 hold the frame 23 to the  $1\frac{1}{2}$ " contrate wheel 26 which takes the drive from the  $\frac{1}{2}$ " pinion 27. The outer frame 28 consists of a 3" by  $1\frac{1}{2}$ " bent strip, and the inner frame 23 is distanced by a collar 29 and a washer 30. The rear springs 33 (Fig. 701F) are first connected to double bent strips 34 which are

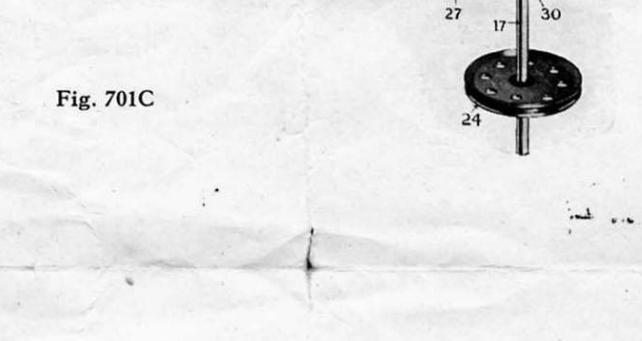


Fig. 701C

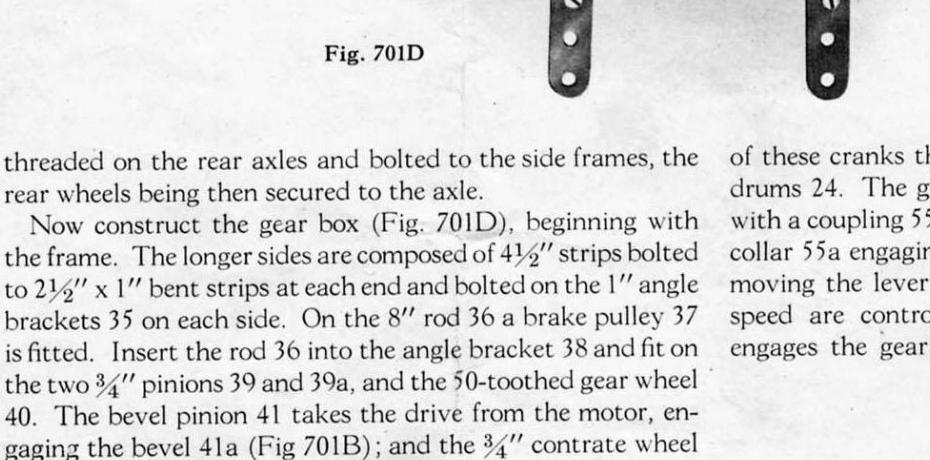


Fig. 701D

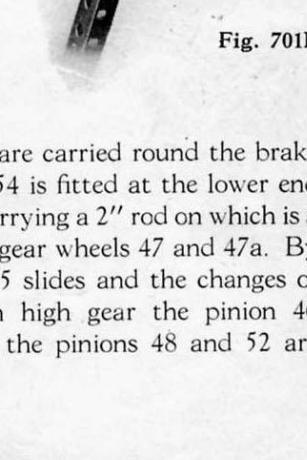


Fig. 701E

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. 701D), beginning with the frame. The longer sides are composed of  $4\frac{1}{2}$ " strips bolted to  $2\frac{1}{2}$ " x 1" bent strips at each end and bolted on the 1" angle brackets 35 on each side. On the 8" rod 36 a brake pulley 37 is fitted. Insert the rod 36 into the angle bracket 38 and fit on the two  $\frac{3}{4}$ " 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. 701B); and the  $\frac{3}{4}$ " 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. 701 and 701A. The 2" rods for the sprocket 44 and bevel 41a are mounted in the end holes of 1" angle brackets secured to one of the  $5\frac{1}{2}$ " cross strips.

The shaft 45 is then inserted, and the  $\frac{3}{4}$ " pinion 46, two 50-teeth gears 47 and 47a, 1" pinion 48 and  $\frac{1}{2}$ " pinion 49 are left loose on the shaft preparatory to the final adjustments. The driver shaft 50 is then inserted and its  $\frac{1}{2}$ " pinion 51 and 1" gear 52 then nipped on. A  $\frac{1}{2}$ " pinion 53 is pivoted on a 1" rod with collar and set screw. The universal joint 31 (Fig.

of these cranks the brake cords are carried round the brake drums 24. The gear-shift lever 54 is fitted at the lower end with a coupling 55 (Fig. 701E) carrying a 2" rod on which is a collar 55a engaging between the gear wheels 47 and 47a. By moving the lever 54 the shaft 45 slides and the changes of speed are controlled. When in high gear the pinion 46 engages the gear wheel 40 and the pinions 48 and 52 are



Fig. 701F

engaged. For low speed the gear 47 engages the pinion 39 and the pinions 48 and 52 are still engaged. For 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.

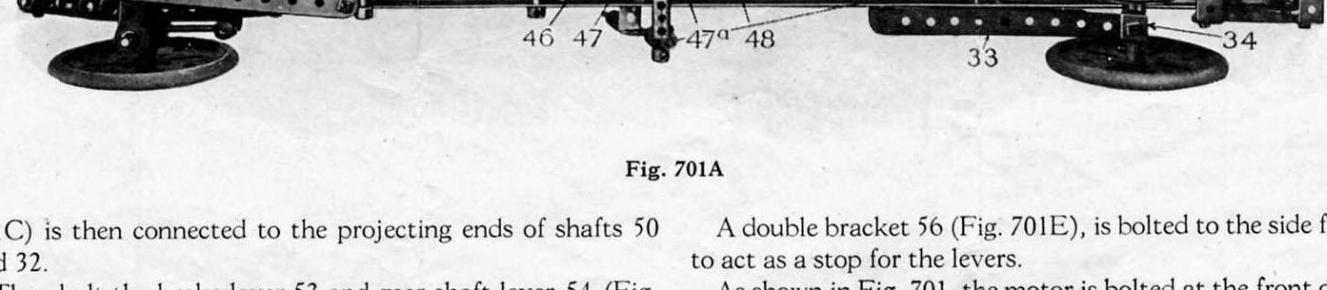


Fig. 701A

701C) is then connected to the projecting ends of shafts 50 and 32.

Then bolt the brake lever 53 and gear-shaft lever 54 (Fig. 701E), to the side frame. The brake lever 53 (Fig. 701), 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

of these cranks the brake cords are carried round the brake drums 24. The gear-shift lever 54 is fitted at the lower end with a coupling 55 (Fig. 701E) carrying a 2" rod on which is a collar 55a engaging between the gear wheels 47 and 47a. By moving the lever 54 the shaft 45 slides and the changes of speed are controlled. When in high gear the pinion 46 engages the gear wheel 40 and the pinions 48 and 52 are

engaged. For low speed the gear 47 engages the pinion 39 and the pinions 48 and 52 are still engaged. For 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.