MECCANO MOTO
CONSTRUCTOR ME

Have the thrills of Brooklands in your own home!

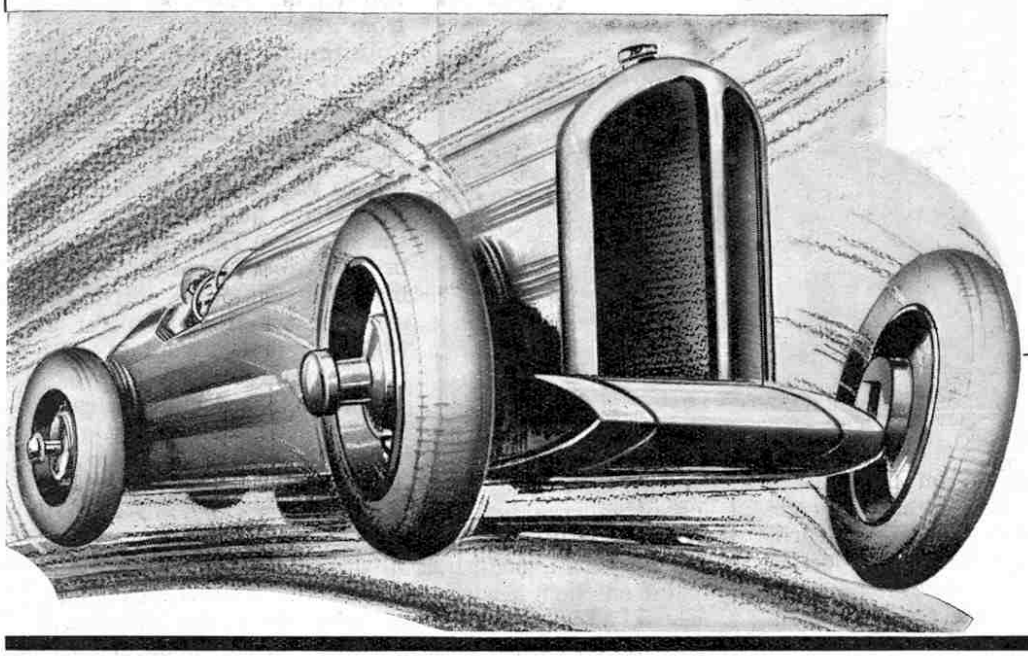
Every boy who is keen on model building will ardently desire one of these fine new Motor Car Constructor Outfits. They are the latest Meccano development and they are sure to have an irresistible appeal for all boys.

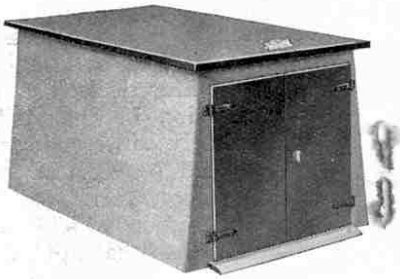
Perfect miniature reproductions of many different types of car can be built with these splendid Outfits including sports four-seaters, speed cars, sports coupés and others. All the models are driven by means of a powerful clockwork motor (included in the Outfit), giving a long, speedy and realistic run on each winding. The parts are finished in rich enamel and nickel-plate, the complete Outfits being masterpieces of miniature automobile craftsmanship.

Now is the time to get a Meccano Motor Car Outfit. You will never grow tired of building and running the superb models that you will be able to build. Make up your mind to get one of these splendid Outfits, and see your dealer about it to-day.

Each Meccano Motor Car Outfit is available in four distinct colour schemes—Red and Light Blue, Light Blue and Cream, Green and Yellow, and Cream and Red, so that the model motor-builder may express his ideas in regard to the appearance of his models. In addition, the following parts are available separately in the colours indicated. Body: Orange; Yellow. Wheels: Orange; Yellow. Wings: Orange; Green.

Build your own Motor Cars!





MOTOR CAR GARAGE

The Meccano Motor Car Garage provides accommodation for any model motor car. It is strongly built, and its rough cast finish gives it an extremely attractive appearance. Price **7/-**

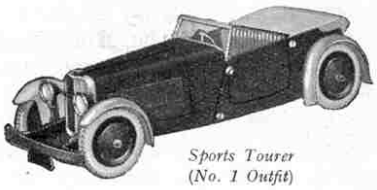
MOTOR CAR LIGHTING SET

This Lighting Set enables the headlamps of Motor Car models built with the 1933 No. 2 Motor Car Outfit to be electrically lighted. Price **2/6**

The Lighting Set cannot be used with 1932 type Motor Car Outfit models unless the latest Headlamps (price 4d. each) and Instrument Board (price 6d.) are added.

No. 1 Meccano Motor Car Outfit

MECCANO LTD. -



Sports Tourer (No. 1 Outfit)

TOR CAR

MECCAUTO 538189

No. 1 MECCANO MOTOR CAR OUTFIT

The motor car models that can be built with this Outfit are the finest you ever saw. Look at the examples illustrated below and think of the fun you could have building this and other types equally graceful and realistic.

No. 1 Outfit is available in four different colour combinations—Red and Light Blue, Light Blue and Cream, Green and Yellow, and Cream and Red. It is supplied complete with powerful Clockwork Motor. Price **14/6**

Built-up models of motor cars made with No. 1 Outfit are available at the following prices :—

1/1 Sports Tourer (with hood) ...	15/-	1/3 Road Racer	14/6
1/2 Saloon Coupé	15/6	1/4 Sports Tourer	14/6

IMPORTANT.—It should be noted that the No. 1 Motor Car Outfit parts cannot be used in conjunction with those of the No. 2 Outfit.

No. 2 MECCANO MOTOR CAR OUTFIT

Larger models of a superior type can be built with No. 2 Outfit. They are perfectly designed, beautifully finished and the most attractive examples of constructional engineering ever invented for the delight of boys. Their handsome and realistic appearance may be judged from the illustrations below.

No. 2 Outfit is available in four different colour combinations—Red and Bright Blue, Light Blue and Cream, Green and Yellow, and Cream and Red. A powerful Clockwork Motor that gives a run of 150 feet on one winding is included. Price **25/-**

CHOICE RANGE OF COLOURS

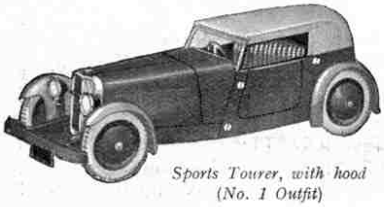
If extra parts in any of the colours mentioned above are required they may be purchased from any Meccano dealer. By adding separate parts in various colours you are able to construct models in a number of pleasing combinations, thus adding considerably to the interest.

In addition to the four standard colour combinations, the following No. 1 Outfit parts are available in the colours indicated :—

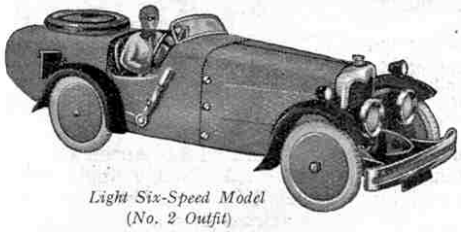
Body Sections : orange, yellow. Wheels : orange, yellow. Wings : orange, green.

No. 2 Meccano Motor Car Outfit

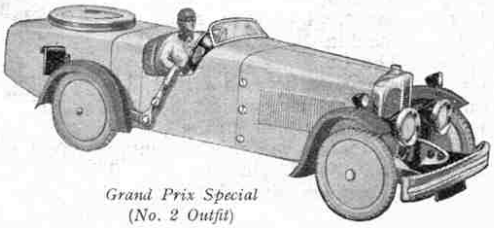
- BINNS ROAD - LIVERPOOL 13



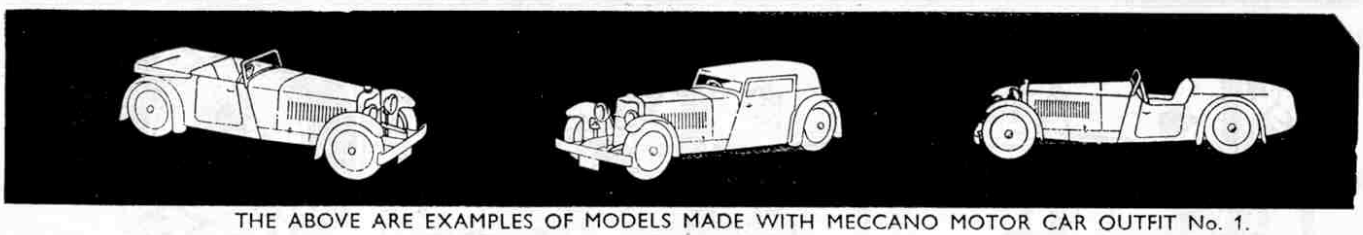
Sports Tourer, with hood (No. 1 Outfit)



Light Six-Speed Model (No. 2 Outfit)



Grand Prix Special (No. 2 Outfit)



THE ABOVE ARE EXAMPLES OF MODELS MADE WITH MECCANO MOTOR CAR OUTFIT No. 1.

MECCANO

MECCAUTO 538189

MOTOR CAR CONSTRUCTOR

Perfect miniature reproductions of many different types of car can be built with these splendid Outfits, including sports four-seaters, speed cars, sports coupés and others. All the models are fitted with a powerful clockwork motor and a steering gear that functions perfectly. The parts are finished in rich enamel and nickel-plate, the complete Outfits being masterpieces of miniature automobile craftsmanship.

Now is the time to get a Meccano Motor Car Outfit. You will never grow tired of building and running the superb models that you will be able to build.

No. 1 MECCANO MOTOR CAR CONSTRUCTOR OUTFIT

The motor car models that can be built with this Outfit are the finest you ever saw. Look at the examples illustrated at the top of this page and think of the fun you could have building these and other types equally graceful and realistic.

No. 1 Outfit is available in four different colour combinations—Red and Light Blue, Light Blue and Cream, Green and Yellow, and Cream and Red. It is supplied complete with powerful Clockwork Motor.

Price **14/6**

No. 2 MECCANO MOTOR CAR CONSTRUCTOR OUTFIT

Larger models of a superior type can be built with No. 2 Outfit. They are perfectly designed, beautifully finished and the most attractive examples of constructional engineering ever invented for the delight of boys. Their handsome and realistic appearance may be judged from the illustrations below.

No. 2 Outfit is available in four different colour combinations—Red and Light Blue, Light Blue and Cream, Green and Yellow, and Cream and Red. A powerful Clockwork Motor that gives a run of 150 feet on one winding is included. Price **25/-**

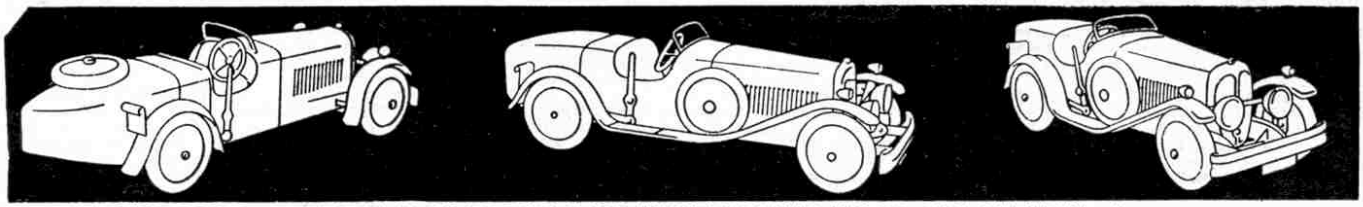
IMPORTANT.—It should be noted that No. 1 Motor Car Outfit parts cannot be used in conjunction with those of No. 2 Outfit.

Manufactured by

MECCANO LTD. - BINNS ROAD - LIVERPOOL 13

MECCANO MOTOR CAR CONSTRUCTOR OUTFIT No. 1

MECCANO MOTOR CAR CONSTRUCTOR OUTFIT No. 2



THE ABOVE ARE EXAMPLES OF MODELS MADE WITH MECCANO MOTOR CAR OUTFIT No. 2.

Interesting Three-Wheeler Cars

Meccano Combined with No. 2 Motor Car Outfit

THREE-WHEELERS form a distinct class of road vehicle. In outward appearance they resemble small cars, but in many mechanical details they follow closely motor cycle practice. For taxation purposes they are classed with motor cycle combinations, and this point alone makes them very popular, as they provide car comfort at a running cost only slightly higher than that of a motor cycle outfit.

Sports Model Morgan

The Morgan is probably the best-known three-wheeler, and several different types are to be seen in daily use. The chassis generally consists of tubular members and is fitted with a V twin engine of orthodox motor cycle design. The engine may be air-cooled or water-cooled, and in some cases an "in-line" type of water-cooled engine is fitted. In some models the drive is taken to a clutch unit that can be engaged with either of two sprockets driving, by means of chains, sprockets of different sizes placed one on each side of the single rear wheel. The touring models have the engine mounted beneath the bonnet, but a notable feature of the sports models is the placing of the engine outside in front of the bonnet. It is this type of Morgan three-wheeler that is shown in model form in Fig. 1.

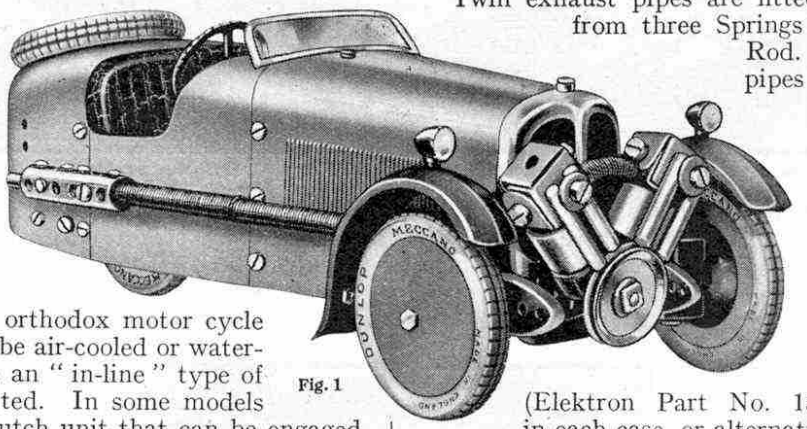


Fig. 1

The general construction of the body is the same as that usually followed for building the Meccano No. 2 Motor Cars, but in assembling the front portion the Bumper and front Number Plate Bracket are omitted, and the Rear Mudguards, Clockwork Motor and Wheels are also left off. The Wind Screen is not fitted in its usual position but is secured in the hole nearer the front, by one of the bolts that hold the Bonnet and Dash Sections together. The Front Mudguard Tie Rod and Headlamps are omitted.

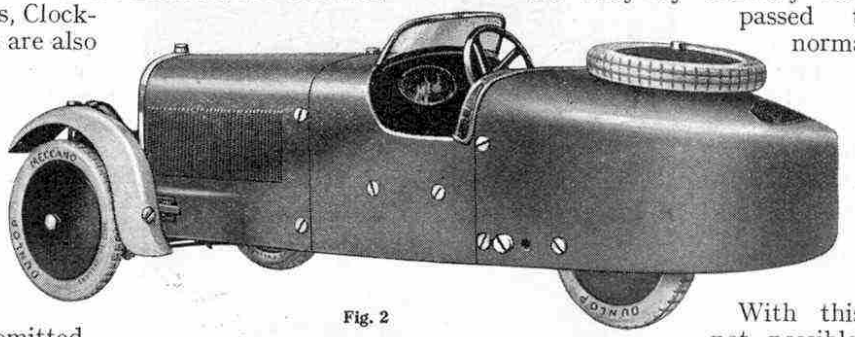


Fig. 2

The V twin engine is of the water-cooled type with overhead valves. It is built up by mounting a 1″ Fast Pulley on a 1″ Screwed Rod and securing on the same Rod two Angle Brackets, each carrying further 1″ Screwed Rods to which the cylinders are fitted. The cylinders each consist of a Chimney Adapter rigidly secured on its Rod by two nuts, and the casings for the overhead valve operating gear are represented in the model by Double Brackets. For the push rods that operate the valves 1″ Axle Rods are used, and are clamped in position by means of ⅜″ Bolts fitted with Washers.

The engine is completed by fitting the inlet pipe, and for this a short length of Spring, cut from Part No. 43, is bolted between the two cylinders as shown. The Radiator with curved sides (Part No. A1001) is used in this model, and the engine is attached to this by inserting the Screwed Rod through the hole in the radiator and securely fixing it by means of a Nut.

Twin exhaust pipes are fitted and are each formed from three Springs placed over a 5″ Axle Rod. The front ends of the pipes are attached to the upper Front Mudguard Brackets in the holes where normally the Headlamps are fitted. The ordinary Motor Car nuts are unsuitable for fixing these, as there is a tendency for them to slip through the holes in the Springs. A Square 6 B.A. Nut (Elektron Part No. 1583) is therefore used in each case, or alternatively a Meccano Washer may be put on each bolt before fixing.

Silencers are fitted on the ends of the pipes and each consists of two Couplings. A 1½″ Axle Rod holds the two Couplings together and protrudes from the rear end of the silencer so formed. The 5″ Rod on which the Springs are mounted is inserted into the forward end of the silencer, and a ½″ Bolt (No. A1056) is inserted through the centre transverse hole of the forward Coupling and secured to the body by two nuts. Two ½″ Reversed Angle Brackets are secured inside the body by ordinary Meccano bolts that are passed through the holes normally occupied by the rear axle. The Brackets point towards the rear and carry a 2″ Axle Rod on which the single Rear Wheel is mounted. Collars retain the Rod in position.

With this arrangement it is not possible to fit a Clockwork Motor, and the Rear Undershield Section cannot be fitted, but the Forward Section is secured in the usual manner.

Parts required for Sports Model Morgan: Motor Car Parts—
1 of No. A1001; 1 of No. A1005; 1 of No. A1006; 1 of No. A1008; 1 of No. A1010; 1 of No. A1012; 1 of No. A1015; 2 of No. A1020; 2 of No. A1025; 1 of No. A1026; 1 of No. A1028; 1 of No. A1029; 1 of No. A1031; 1 of No. A1032; 1 of No. A1034; 2 of No. A1035; 3 of No. A1037; 1 of No. A1038; 1 of No. A1045; 1 of No. A1046; 2 of No. A1052; 2 of No. A1055; 3 of No. A1056; 2 of No. A1057; 4 of No. A1058; 1 of No. A1064; 2 of No. A1065; 1 of No. A1066; 2 of No. A1069; 2 of No. A1071; 1 of No. A1072; 2 of No. A1073; 1 of No. A1075; 18 of No. A1076; 33 of No. A1077; 6 of No.

A1082 ; 1 of No. A1086 ; Meccano Parts—6 of No. 11 ; 2 of No. 12 ; 2 of No. 15 ; 1 of No. 17 ; 2 of No. 18a ; 4 of No. 18b ; 1 of No. 22 ; 6 of No. 37 ; 14 of No. 37a ; 2 of No. 38 ; 7 of No. 43 ; 4 of No. 63 ; 3 of No. 82 ; 2 of No. 111c ; 2 of No. 125 ; 2 of No. 164. Elektron Parts—2 of No. 1583.

B.S.A. Type Tourer

An outstanding feature of the B.S.A. three-wheeler is the front-wheel drive. The engine is mounted under the bonnet and is built as a unit with the gear-box and differential. The chassis is in the form of a Y, the stem of which is a tubular element, the arms being of channel section and supporting the engine. At the rear end a fork piece carries a pivoted arm, the outer end of which supports the rear wheel spindle. The inner end of the arm is extended by a leaf spring that is anchored inside the tube.

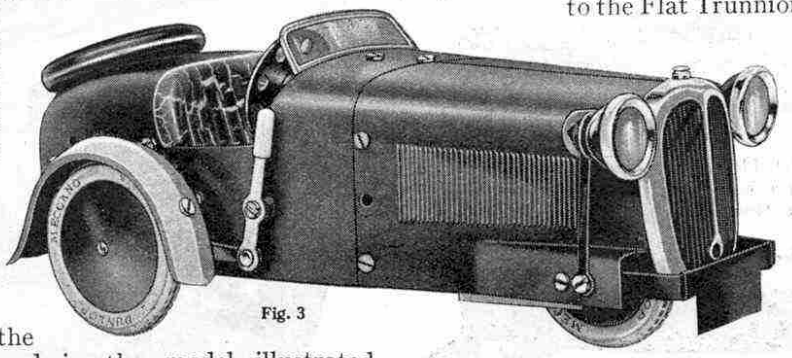


Fig. 3

The general outline of the B.S.A. is closely followed in the model illustrated in Fig. 2, the construction of which does not differ very much from the ordinary models. The Radiator with parallel sides (No. A1000) is fitted, and the tapering Rear Section (No. A1016) conforms with the lines of the actual car. Headlamps only are fitted, as in the prototype ; and to preserve the neatness of appearance, both in this and the model already described, the number plates have been omitted. Actually the number plates are fitted at the extreme rear of the body, but this cannot be done in the models. Reversed Angle Brackets carry the rear axle and are arranged in a similar manner to that described above for the Morgan. Also the front Undershield only is fitted.

Parts required for B.S.A. Type Tourer : Motor Car Parts—1 of No. A1000 ; 1 of No. A1004 ; 1 of No. A1006 ; 1 of No. A1008 ; 1 of No. A1010 ; 1 of No. A1012 ; 1 of No. A1016 ; 2 of No. A1020 ; 2 of No. A1025 ; 1 of No. A1026 ; 1 of No. A1027 ; 1 of No. A1028 ; 1 of No. A1029; 1 of No. A1031 ; 1 of No. A1032 ; 1 of No. A1034 ; 2 of No. A1035 ; 3 of No. A1037 ; 1 of No. A1038 ; 1 of No. A1045 ; 1 of No. A1046 ; 2 of No. A1051 ; 2 of No. A1055 ; 1 of No. A1056 ; 2 of No. A1057 ; 4 of No. A1058 ; 1 of No. A1064 ; 2 of No. A1065 ; 1 of No. A1066 ; 2 of No. A1069 ; 2 of No. A1071 ; 1 of No. A1072 ; 2 of No. A1073 ; 1 of No. A1075 ; 20 of No. A1076 ; 33 of No. A1077 ; 6 of No. A1082 ; 1 of No. A1086. Meccano Parts—1 of No. 17 ; 2 of No. 37 ; 2 of No. 125.

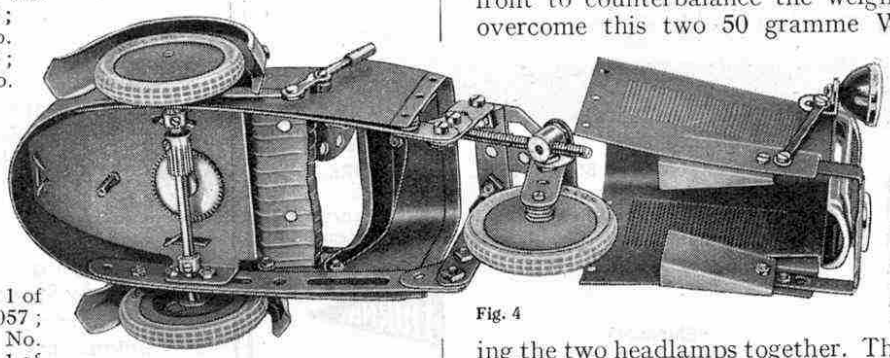


Fig. 4

Raleigh Type Three-Wheeler

The new Raleigh three-wheeler was dealt with on page 197 of last month's "*M.M.*" It differs considerably from previous types in having the single wheel at the front and the two rear wheels driven in a similar manner to the majority of motor cars. In general body design the Raleigh closely resembles an ordinary sports car, except for the single front wheel, and of course the absence of external front mudguards. The chassis is of entirely new design, however, each side member being in the form of a letter "L," the long arm forming the actual side member and the short arm being arranged vertically at the front.

In the model, Fig. 3, the chassis side girders are formed from $5\frac{1}{2}''$ Slotted Strips carrying at their forward ends 2″ Strips secured at right-angles by means of 1″ Corner Brackets. This construction is shown in the underneath view in Fig. 4. The upper ends of the 2″ Strips are connected by a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip to which a Flat Trunnion is bolted. The forks are formed from a pair of 2″ Strips attached to a Double Bracket pivoted to the Flat Trunnion. A 1″ Axle Rod supports the front Wheel, which is spaced by means of Washers.

Instead of the usual Steering Wheel and Column a $4\frac{1}{2}''$ Screwed Rod is used, and carries at its upper end a Bush Wheel that is fixed by two Nuts. The Sleeve is then fitted on the Rod before the latter is passed through the hole in the Instrument Board and fitted with a loose Collar and two nuts locked together to retain the Rod in position. The lower end of the Screwed Rod is passed through the transverse bore of a Threaded Boss attached to an Angle Bracket pivoted to the forks as shown.

In Fig. 4 the bonnet is shown removed so that the construction can be seen more clearly. When this is fixed in position the $\frac{1}{4}''$ Bolts that pass through the lower holes and the chassis side members each carry two Insulating Washers (Elektron Part No. 1570) placed between the chassis girders and the body.

Power for the drive is supplied by a Clockwork Motor mounted in the usual way, as shown, and the brake drum is also fitted to the offside rear wheel. It will be found that the model has insufficient weight at the front to counterbalance the weight of the Motor. To overcome this two 50 gramme Weights are mounted inside the bonnet by means of $\frac{1}{4}''$ Bolts, and these keep the front wheel on the ground.

The headlamps are mounted on Angle Brackets carried on the upper ends of Tie Rods that are normally used for connecting the two headlamps together. The Motor Car Nuts and Bolts are too small for the standard Meccano holes, and a fibre Washer is placed behind each nut. The lower part of the Radiator is pulled outward to produce the sloping front characteristic of the actual car.

Parts required for Raleigh Type Three-Wheeler : Motor Car Parts—1 of No. A1001 ; 1 of No. A1005 ; 1 of No. A1006 ; 1 of No. A1008 ; 1 of No. A1010 ; 1 of No. A1012 ; 1 of No. A1015 ; 2 of No. A1022 ; 4 of No. A1024 ; 2 of No. A1027 ; 1 of No. A1031 ; 3 of No. A1037 ; 1 of No. A1040 ; 1 of No. A1041 ; 1 of No. A1043 ; 1 of No. A1044 ; 1 of No. A1045 ; 1 of No. A1046 ; 1 of No. A1050 ; 2 of No. A1051 ; 1 of No. A1056 ; 3 of No. A1057 ; 3 of No. A1058 ; 1 of No. A1060 ; 1 of No. A1063 ; 1 of No. A1064 ; 1 of No. A1070 ; 1 of No. A1074 ; 21 of No. A1076 ; 32 of No. A1077 ; 9 of No. A1082. Meccano Parts—4 of No. 6 ; 1 of No. 11 ; 3 of No. 12 ; 1 of No. 18b ; 1 of No. 24 ; 13 of No. 37 ; 6 of No. 37a ; 7 of No. 38 ; 1 of No. 48 ; 2 of No. 55 ; 1 of No. 64 ; 2 of No. 66 ; 1 of No. 80b ; 1 of No. 126a ; 2 of No. 133a ; 6 of No. 182. Elektron Parts—2 of No. 1570.

MECCANO
MOTOR CAR CONSTRUCTOR

Build your own Model Motor Cars

This Motor Car Constructor Outfit, the latest Meccano development, makes an instant appeal to all keen model-builders.

The parts contained in this splendid Outfit are strongly made and beautifully finished. They enable models of sports and speed cars to be built, each strikingly realistic—a masterpiece of design and workmanship. In addition, the Outfit contains a powerful clockwork motor, which gives the models a run of 150 feet on one winding.

The Motor Car Outfit is available in three different colour combinations—Red and Cream, Blue and Cream and Green and Cream. Please specify the colour combination required when ordering.

Price 25/-

Special Features of Meccano Motor Car Constructor Models

High Power Drive

Ackermann Steering Gear

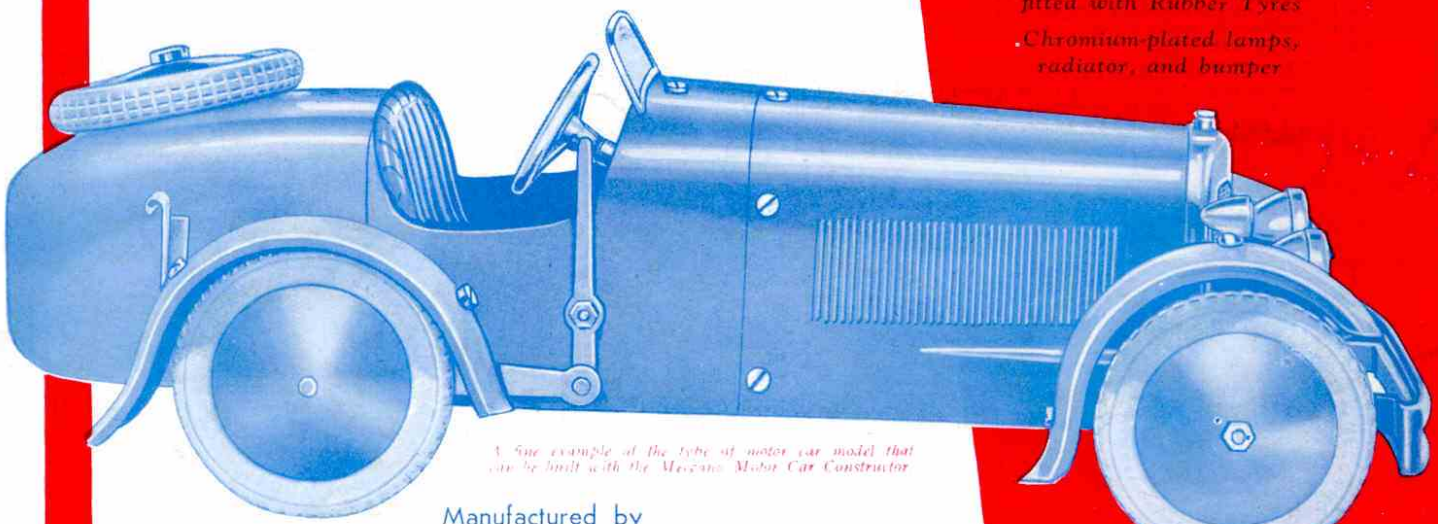
Internal-expanding rear wheel brakes

Solid die-cast disc wheels fitted with Rubber Tyres

Chromium-plated lamps, radiator, and bumper

Motor Car Garage

This miniature garage provides splendid accommodation for a model motor car. It is strongly built, and its pebbledash finish gives it an extremely attractive appearance. Dimensions :— $14\frac{7}{8} \times 9 \times 7\frac{3}{8}$ inches. Price **10/6**



A fine example of the type of motor car model that can be built with the Meccano Motor Car Constructor

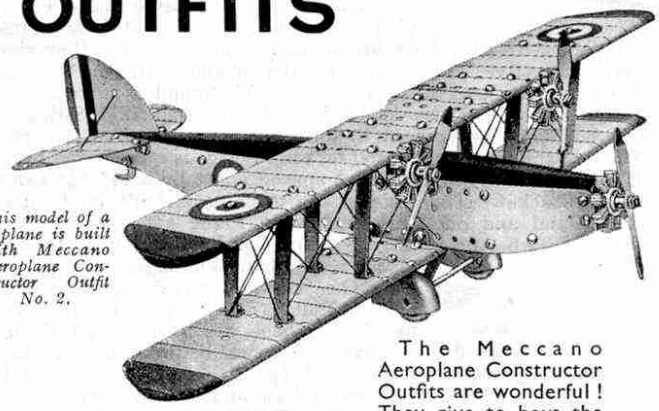
Manufactured by

MECCANO LIMITED, OLD SWAN, LIVERPOOL

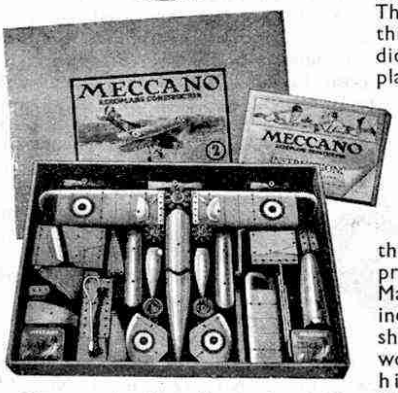
PUBLISHED BY MECCANO LTD., OLD SWAN, LIVERPOOL, ENGLAND.
Printed by John Waddington Ltd., Leeds and London

MECCANO

AEROPLANE CONSTRUCTOR OUTFITS



This model of a Biplane is built with Meccano Aeroplane Constructor Outfit No. 2.

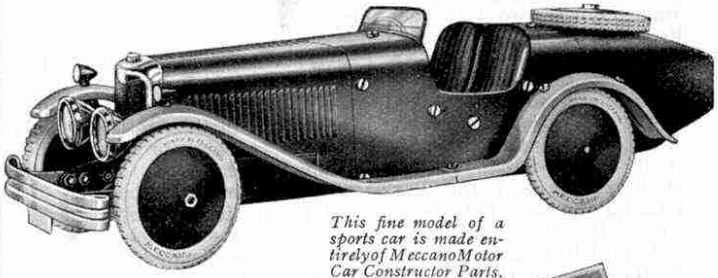


Meccano Aeroplane Constructor Outfit No. 2.

The Meccano Aeroplane Constructor Outfits are wonderful! They give to boys the thrill of building splendid models of aeroplanes. The parts in these Outfits enable aeroplane construction to be carried out on sound engineering lines. They are all interchangeable on the famous Meccano principle. The illustrated Manual of Instructions included in each Outfit shows how to build wonderful models of high and low-wing Monoplanes, Biplanes, Seaplanes and giant amphibian machines; in fact, models of almost every type of aircraft can be made with these splendid Outfits.

Meccano Aeroplane Constructor Outfit No. O Price **5/-**
Meccano Aeroplane Constructor Outfit No. 1 Price **9/-**
Meccano Aeroplane Constructor Outfit No. 2 Price **16/6**

MOTOR CAR CONSTRUCTOR OUTFIT



This fine model of a sports car is made entirely of Meccano Motor Car Constructor Parts.

Every boy who is keen on model-building will welcome this new Motor Car Constructor Outfit, the latest Meccano development.

The parts contained in this splendid Outfit are strongly made and beautifully finished. They enable models of sports and speed cars to be built, each strikingly realistic—a masterpiece of design and workmanship.

An extremely powerful clockwork motor is included which gives the models a run of 150 feet on one winding.

Meccano Motor Car Constructor Outfit.

The Outfit is available in three different colour combinations as indicated below. The beautiful colouring of the parts is another feature that makes this one of the most attractive toys ever produced. Please specify the colour you require when ordering, or, better still, ask your dealer to show you a specimen of each Outfit. Price **25/-**

Body: Choice of Red, Blue or Green. **Mudguards:** Cream. **Radiator Frame:** Chromium-plated. **Bumpers and Lamps:** Chromium-plated.

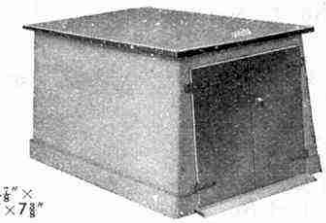
AEROPLANE HANGAR

29½" × 22" × 12¾"

This splendid hangar, with its realistic double sliding doors, has been specially designed to house model aeroplanes. It will accommodate six machines built with the No. O Meccano Aeroplane Constructor Outfit, or two built with either No. 1 or No. 2 Outfits. Price **25/-**

If you want to know something about aeronautics, buy a Meccano Aeroplane Constructor Outfit today.

MOTOR CAR GARAGE



14⅞" × 9" × 7⅞"

This miniature garage provides splendid accommodation for a model motor car. It is strongly built, and its pebble-dash finish gives it an extremely attractive appearance. Price **10/6**

MECCANO LTD.
OLD SWAN
LIVERPOOL

This model of a Biplane is built with Meccano Aeroplane Constructor Outfit 2.

MECCANO

AEROPLANE CONSTRUCTOR OUTFITS

Boys, the Meccano Aeroplane Constructor Outfits are fine! The parts contained in them are all interchangeable on the famous Meccano principle and they enable aeroplane construction to be carried out on sound engineering lines. The illustrated Manual included in each Outfit shows how to build wonderful models of Monoplanes, Biplanes, Seaplanes and giant amphibian machines; in fact, models of almost every type of aircraft can be made with these splendid Outfits. Your dealer will be pleased to show them to you.

Meccano Aeroplane Constructor Outfit No. 0 Price **5/-**

Meccano Aeroplane Constructor Outfit No. 1 Price **9/-**

Meccano Aeroplane Constructor Outfit No. 2 Price **16/6**

Meccano Aeroplane Constructor Outfit No. 2

AEROPLANE HANGAR

29" × 22" × 10½"

This splendid hangar, with its realistic double sliding doors, has been specially designed to house model aeroplanes. It will accommodate six machines built with the No. 0 Meccano Aeroplane Constructor Outfit, or two built with either No. 1 or No. 2 Outfits.

Price **25/-**

MOTOR CAR CONSTRUCTOR OUTFIT

This splendid Motor Car Outfit—one of the latest Meccano developments—enables models of sports and speed cars to be built, each strikingly realistic, a masterpiece of design and workmanship.

An extremely powerful clockwork motor is included which gives the models a run of 150 feet on one winding.

The Outfit is available in three different colours—Red, Blue and Green. Please specify the colour you require when ordering, or, better still, ask your dealer to show you a specimen of each Outfit.

Price **25/-**

Meccano Motor Car Constructor Outfit

MOTOR CAR GARAGE

14¾" × 9" × 7¾"

This miniature garage provides splendid accommodation for a model motor car. It is strongly built, and its pebble-dash finish gives it an extremely attractive appearance.

Price **10/6**

This fine model of a sports car is made entirely of Meccano Motor Car Constructor Parts.

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Model Motoring For All

The Fascinating Meccano Car Constructor

AT this time of the year Meccano boys begin to think of outdoor sports and amusements, and the keen model-builder naturally looks for some open-air pastime or hobby that will take the place of his indoor model-building activities. Nowadays there is a big variety of outdoor recreations, but undoubtedly one of the most fascinating is model car operation with cars built from Meccano Motor Car Constructor Outfits. Many thousands of Meccano boys are proud possessors of these Outfits, but although they obtain a great deal of fun by running their cars indoors, probably many have not realised the wonderful possibilities that the use of the car out of doors affords.

A Meccano Motor Car Constructor Outfit actually provides an ideal hobby for the Spring and Summer months, as it enables many fascinating hours to be spent in the open air operating the models built with the Outfit, while at the same time it provides the model-builder with constructional work when it is not possible to be out of doors. Many interesting racing events, competitions, experiments, etc., can be arranged for the models, and in this article we deal with this interesting aspect of Meccano model motoring. Some useful hints regarding construction and adjustment are also included, so that constructors may obtain the maximum efficiency from their cars.

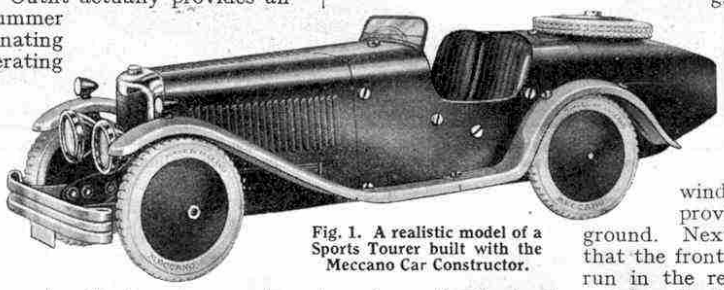

Fig. 1. A realistic model of a Sports Tourer built with the Meccano Car Constructor.

The Meccano Motor Car Constructor, although introduced only last year, has already achieved remarkable popularity, and a big proportion of our readers will now be familiar with its general design. For the benefit of those who are not, however, we include a short description of the Outfit and the different speed cars that can be built by means of it.

Each Motor Car Constructor Outfit contains a complete set of miniature automobile parts with which realistic models of sports and speed cars may be built. Some of the parts in the Outfit are enamelled in colours, while others are chromium plated, so that a car built up from the Outfit has a particularly handsome appearance.

The realistic effect has not been achieved at the expense of adaptability, however, as many of the parts, such as body sections, Mudguards, Radiator, Spare Wheel, may be changed so as to produce different types of cars. In addition it is possible to shorten or lengthen the wheelbase of the car, so that a model of a big sports tourer, or of a light speed model with a shorter wheelbase, may be assembled as desired.

The Meccano Motor Car Constructor can be obtained in four distinct colour schemes, red and cream, light blue and cream, green and yellow, and red and light blue, so that the model motor-builder may express his ideas in regard to the appearance of his models.

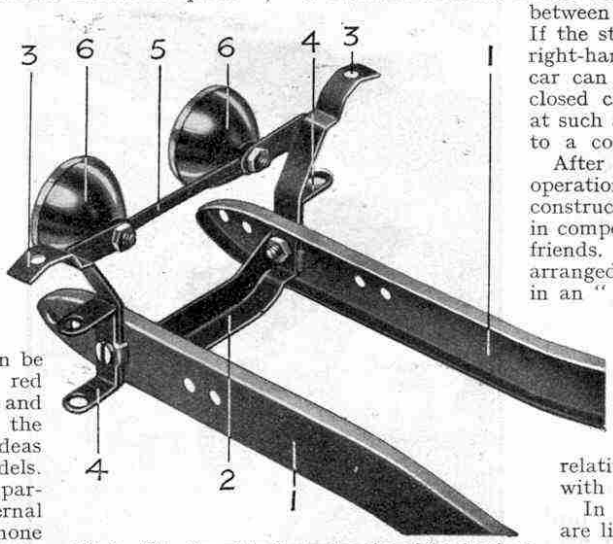

Fig. 2. This view of the forward portion of the chassis of the car shows how closely the special Motor parts resemble actual automobile units.

While the Meccano Motor Car has a particularly fine external appearance, the internal mechanical features and motor drive are none the less interesting. The steering gear is of the worm and nut type, the steering bell crank being connected to a track rod that is attached to the front road wheel stub axles in a similar manner to an actual car. The brake is of the internal expanding type operating on a drum on the rear wheel, and provides a very powerful braking action. The spring Motor with which the car is powered has been specially designed to provide a long run at high speed, and some idea of its efficiency can be gained from the fact that it will drive the model for a distance of 150 feet, at a scale speed of approximately 100 m.p.h. Full instructions for building up the car with the Motor Car Constructor parts are contained in the special Instructions supplied with the Outfit, and no difficulty should be experienced in assembling a model if the instructions are followed.

Before giving the completed car a trial run, the various moving portions should be inspected in order to make sure that they are adjusted correctly. A hall or passage may be used for running the car, but by far the most satisfactory type of "test ground" is a stretch of smooth concrete or asphalt. A garden path having a smooth hard surface is also suitable, but the car will not run well on a gravel or other loose surfaced track owing to the high frictional resistance between the wheels and the ground. In addition, loose particles of gravel or sand are liable to enter the clockwork mechanism, with a detrimental effect on the running of the car.

To operate the model, first place the brake in the "on" position by drawing the Brake Lever toward the rear of the car. Then wind up the motor with the key provided and place the car on the ground. Next turn the steering wheel so that the front wheels are set for the car to run in the required direction, and finally release the brake by moving the brake lever into the forward position. The car will then commence to move forward, gradually gathering speed until it is running "flat out." It will continue to travel at top speed until the spring motor is practically unwound, when it will slow down and finally come to rest.

The length of run obtained with the model depends of course on the smoothness or otherwise of the ground, but it is affected also by the angle at which the front wheels are set. If the car is arranged to travel in a straight line, the full run of 150 ft. will be obtained on a good surface. On a circular course the length of run is reduced to some extent on account of the increased friction between the road wheels and the track. If the steering wheel is turned so that full right-hand or left-hand lock is obtained, the car can be made to run in a very small closed circuit, but the friction in turning at such a sharp angle will reduce the speed to a considerable extent.

After the steering of the car and brake operation have been mastered fully, the constructor will be keen to enter his model in competition with model cars built by his friends. Some very exciting races can be arranged, and when several cars are entered in an "event," the effect is very thrilling. For the best effect, a fairly large open space such as a concrete or asphalt playground is required, but where this is not available, "lap" races in which the model cars make a fixed number of circuits of a relatively short course can be staged with interesting results.

In an actual race the competing cars are lined up at the starting point, each one occupying a space marked off on the ground. Model-builders may reproduce this feature by marking out spaces on the ground in which the model cars must be placed before the commencement of the race; strips of white paper can be used for this purpose.

Several "course officials" should be appointed before the commencement of the race, and they are responsible for giving the starting signal and recording the winning car at the finishing end of the course, while they must also see that no "rules" are broken while the race is in progress. The cars may be started by "flagging off." A suitable flag can be made from paper or cloth, and this is held by the starter. At the required moment he lowers the flag,

and the cars are started by their respective operators. A toy cap pistol may also be used for starting purposes.

A quick start is of vital importance in a model race, especially if the course is not a very long one, and each operator should therefore be ready to release the brake of his model on the instant the signal is given. The best way of doing this is to hold the car in position by resting the left hand on the rear portion of the bodywork, while the Brake Lever is held by the fingers of the right hand. The instant the starting signal is given the Brake Lever is pushed forward, thus releasing the rear axle, so that the model may speed away.

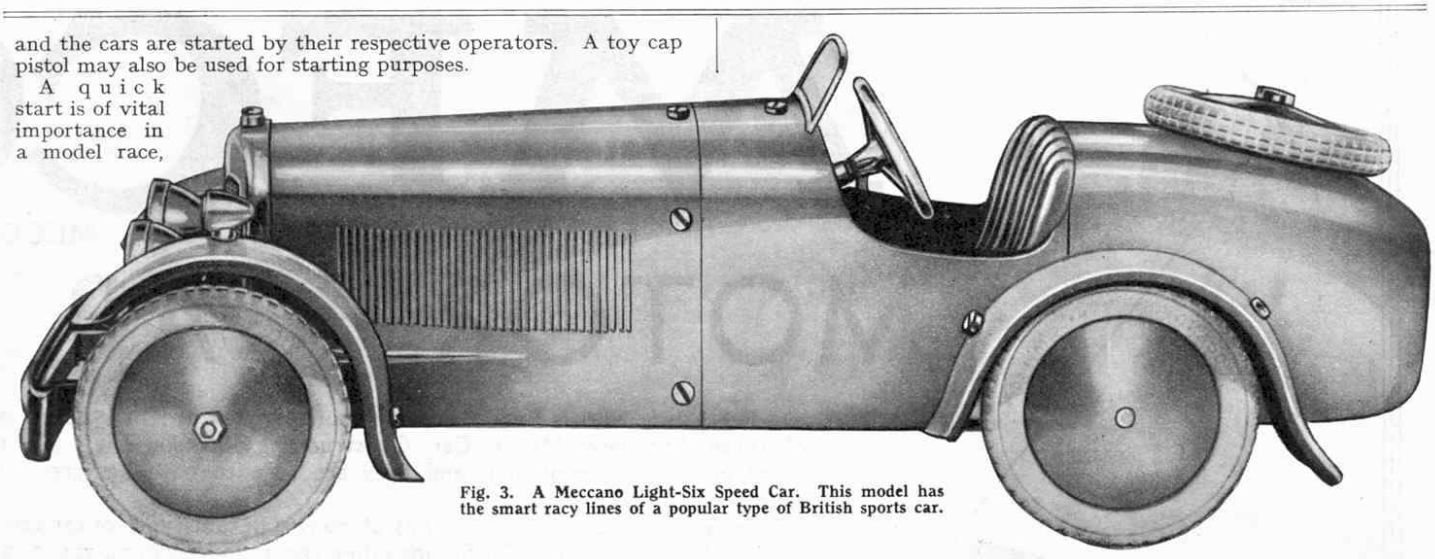

Fig. 3. A Meccano Light-Six Speed Car. This model has the smart racy lines of a popular type of British sports car.

When a "lap" event is being run, the winner of the race cannot be identified as easily as in a straight circuit, as the model car that has completed the full number of laps may lie behind another car with a lower number of laps to its credit, the latter consequently giving the impression of being the winner. It is here that the "course officials" play their part by noting carefully the number of laps completed by each car entered in the race. The winning car may be "flagged in" with a chequered flag.

The various colour combinations in which the Meccano Motor Car can be produced will generally enable the different entries to be distinguished easily during a race. In a big race, however, in which many Meccano Cars are entered, it is a good plan to fix discs of white card to the sides of the bodywork of the cars, distinguishing numbers being painted on these discs in black. In doing this Meccano boys will be following actual motor racing practice, as the entries in big racing events are marked in this way.

Fig. 4. The Meccano Garage.

Mention of distinguishing marks brings us to an addition that will give an individual touch to the car—the painting of registration numbers on the Front and Rear Number Plate of the machine. The Number Plates of the Meccano Motor Car are supplied blank, so that constructors may insert any number they desire. They may, for instance, fill in the registration number of their father's car, or of that of a friend who owns an attractive sports or racing machine. The figures may be painted on the Number Plates in Chinese white water colour, a fine brush being used so as to obtain a neat effect. If a more permanent result is desired, white oil colour mixed with a little turpentine may be used.

Turning once again to the subject of model races, some readers may be inclined to think that competitive events in which Meccano Cars are entered will result in "dead heats," owing to the fact that the motive power, steering mechanism, etc., are identical. This is not the case, however. All Meccano Cars when correctly assembled will have practically the same performance as regards speed and length of run, but the final adjustment and lubrication of the mechanism rests with the owner, and the model-builder who pays particular attention to the "tune" of his car will enable it to outdistance less well-adjusted models.

In tuning the car so as to obtain the maximum efficiency, the most important point is to see that there is no stiffness in the drive from the Contrate on the spring motor to the road wheels. The Collars that hold the Rear Axle in position should be adjusted so that the Axle can turn freely; too much lateral play must not be allowed, however, as this will result in irregular running. The Driving Pinion mounted on the Rear Axle must engage the teeth of the Contrate smoothly, and in order to ensure that no slip takes place between the Pinion and the shaft, a depression is cut in the Axle, into which the grub-screw of the Pinion should be driven. For maximum speed there must, of course, be no retarding or braking effect, and it is therefore important to see that the drum of the internal-expanding brake does not touch the Rear Wheel at any point when the brake is in the "off" position, with Brake Lever pushed forward.

If the brake mechanism has not been assembled correctly there will be a tendency for the Drum to press against the Wheel flange. This mechanism is assembled as follows. The end of the Brake Rod is first pushed into position in the Brake Drum by passing it between the securing flange and the rim, care being taken to see that the Brake Lever is on the inside of the Brake Rod when the unit is attached to the Car. The Lever is pushed forward until the narrow portion of the cam end is opposite the opening in the rim, and is then slipped into place. With the Drum held in one hand, the Brake Rod is drawn outward so that the second fixing hole in the lug of the Drum is uncovered. The Brake Drum is now bolted to the car by $\frac{1}{4}''$ Bolts, which also serve to hold the Rear Mudguard Brackets in position.

The Brake Lever is mounted on the special $\frac{5}{16}''$ Bolt and held in place by means of a nut. In assembling the rear road axle, the right-hand Rear Wheel is first secured on one end of the Axle by means of its grub-screw, and the Axle is then pushed through the bearing in the right-hand side of the Frame, the Collars and Driving Pinion being slipped on before the Axle is pushed through the left-hand side of the Frame. Finally the left-hand Rear Wheel is mounted in place on the projecting end of the Axle.

The Meccano Car, like a real car, must be carefully lubricated from time to time in order to reduce friction and wear to a minimum. The special Meccano Oil should be used for this purpose, and this may be applied by means of either the No. 1 or the No. 2 Oilcan, the No. 2 Oilcan being particularly suitable for use with the car as it is a correct scale model of the actual "K" type engineer's oilcan used in many garages and motor works. Oil should be applied to the teeth of the Contrate Wheel and driving Pinion and to the Rear Axle bearings, and a little also to the steering gear and front road axles. Oil must not be allowed to reach the Brake Drum, as this will cause slipping.

Meccano model motoring would not be complete without some means of accommodating the car when not in use, and the Meccano Garage has been produced for this purpose. Another interesting addition is the Car Lighting Set, which enables the Headlamps of the model to be fitted with electric lights.

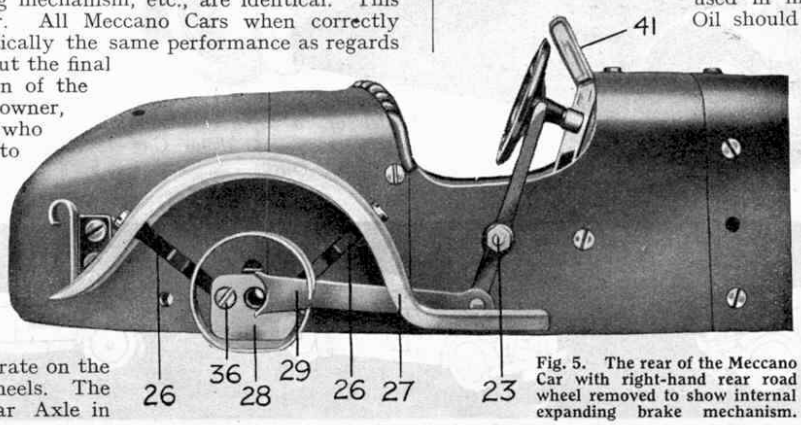

Fig. 5. The rear of the Meccano Car with right-hand rear road wheel removed to show internal expanding brake mechanism.

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MOTOR CAR C

Every boy who is keen on model building will ardently desire one of these fine new Motor Car Constructor Outfits. They are the latest Meccano development and they are sure to have an irresistible appeal for all boys.

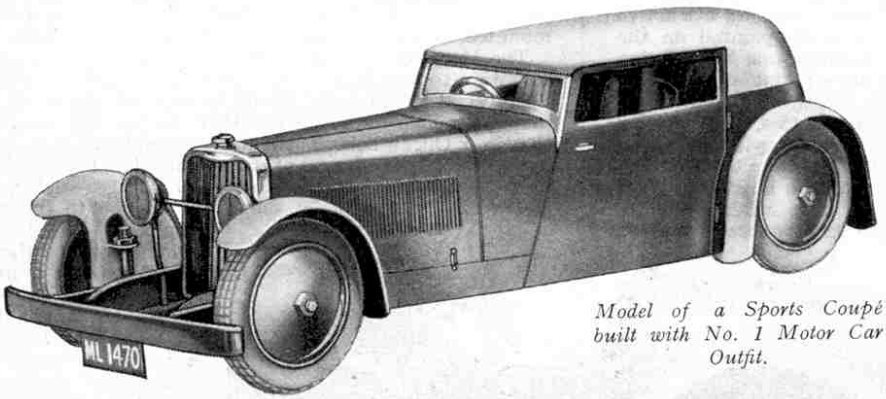
Perfect miniature reproductions of many different types of car can be built with these splendid Outfits including sports four-seaters, speed cars, sports coupés and others. All the models are fitted with a powerful clockwork drive and a steering gear that functions perfectly. The parts are finished in rich enamel and nickel-plate, the complete Outfits being masterpieces of miniature automobile craftsmanship.

No. 1 MECCANO MOTOR CAR CONSTRUCTOR OUTFIT

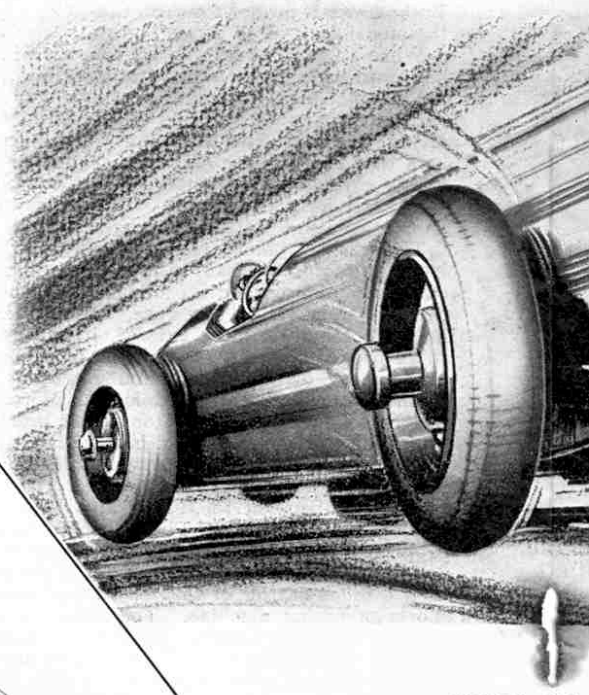
The motor car models that can be built with this Outfit are the finest you ever saw. Look at the example illustrated below and think of the fun you could have building this and other types equally graceful and realistic.

No. 1 Outfit is available in four different colour combinations—Red and Light Blue, Light Blue and Cream, Green and Yellow, and Cream and Red. It is supplied complete with powerful Clockwork Motor.

Price **14/6**



Model of a Sports Coupé built with No. 1 Motor Car Outfit.



MOTOR CAR

The Meccano Motor Car Garag
for any model motor car. It
pebble-dash finish gives it an extre
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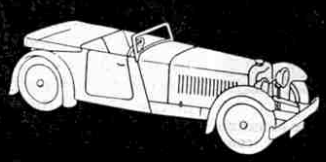

THE ABOVE ARE EXAMPLES OF MODELS MADE WITH MECCANO MOTOR CAR OUTFIT No. 1.

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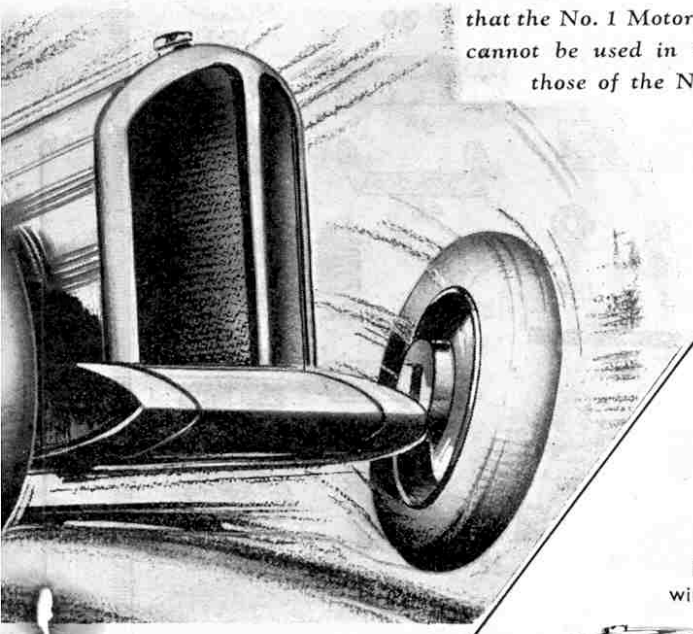
CONSTRUCTOR

Now is the time to get a Meccano Motor Car Outfit. You will never grow tired of building and running the superb models that you will be able to build. Make up your mind to get one of these splendid Outfits, and see your dealer about it to-day.

Each Meccano Motor Car Outfit is available in four different colour combinations—Red and Light Blue, Light Blue and Cream, Green and Yellow, and Cream and Red. In addition, the following parts will be available separately in the colours indicated. Body: Orange; Yellow. Wheels: Orange; Yellow. Wings: Orange; Green.

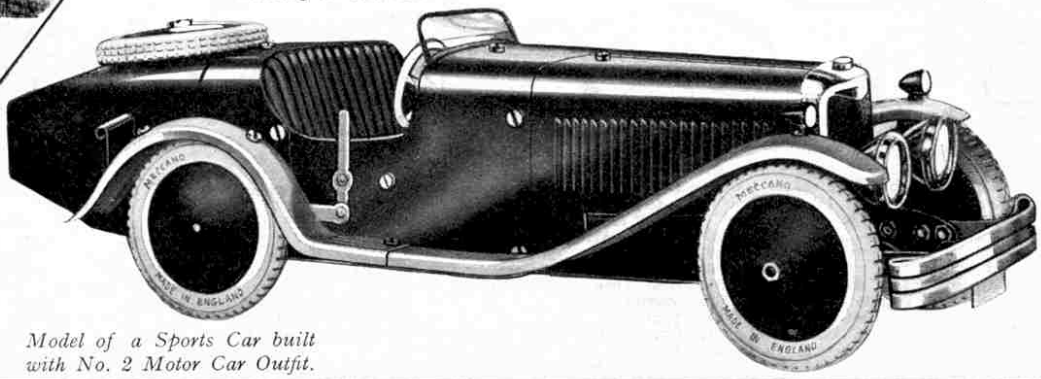
IMPORTANT. It should be noted that the No. 1 Motor Car Outfit parts cannot be used in conjunction with those of the No. 2 Outfit.



No. 2 MECCANO MOTOR CAR CONSTRUCTOR OUTFIT

Larger models of a superior type can be built with No. 2 Outfit. They are perfectly designed, beautifully finished and the most attractive examples of constructional engineering ever invented for the delight of boys. Their handsome and realistic appearance may be judged from the illustration below.

No. 2 Outfit is available in four different colour combinations—Red and Bright Blue, Light Blue and Cream, Green and Yellow, and Cream and Red. A powerful Clockwork Motor that gives a run of 150 feet on one winding is included. Price **25**/-



Model of a Sports Car built with No. 2 Motor Car Outfit.

)R CAR GARAGE

Car Garage provides accommodation car. It is strongly built, and its an extremely attractive appearance. Price **7**/-

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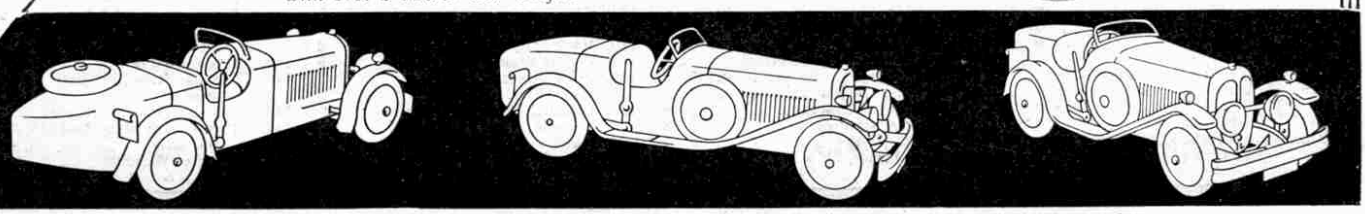

THE ABOVE ARE EXAMPLES OF MODELS MADE WITH MECCANO MOTOR CAR OUTFIT No. 2.