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.

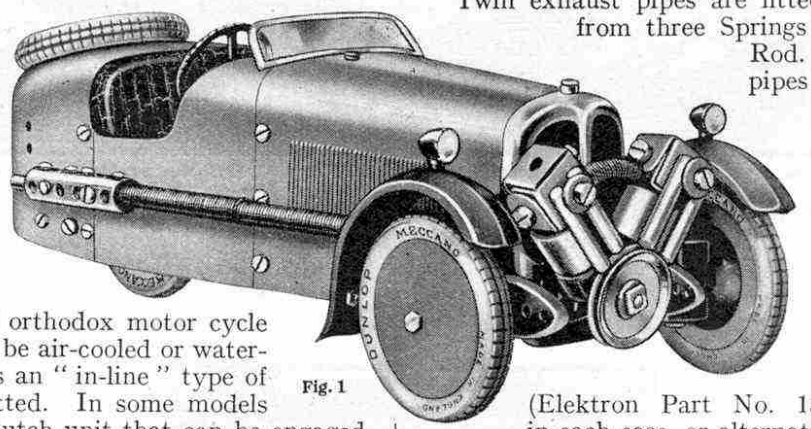

Fig. 1

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.

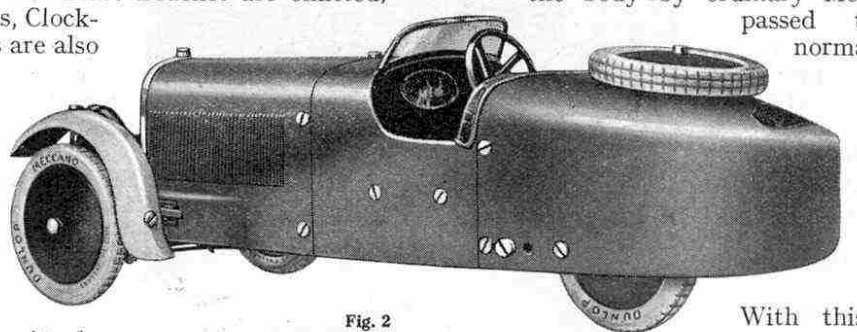

Fig. 2

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 $\frac{3}{8}$" 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 $1\frac{1}{2}$" 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 $\frac{1}{2}$" Bolt (No. A1056) is inserted through the centre transverse hole of the forward Coupling and secured to the body by two nuts.

Two $\frac{1}{2}$" 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.

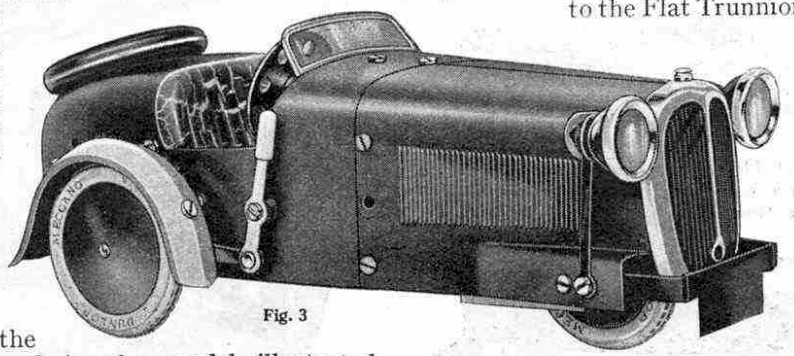

Fig. 3

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.

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 5½" 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 1½" × ½" 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 4½" 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 ¼" 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 ¼" Bolts, and these keep the front wheel on the ground.

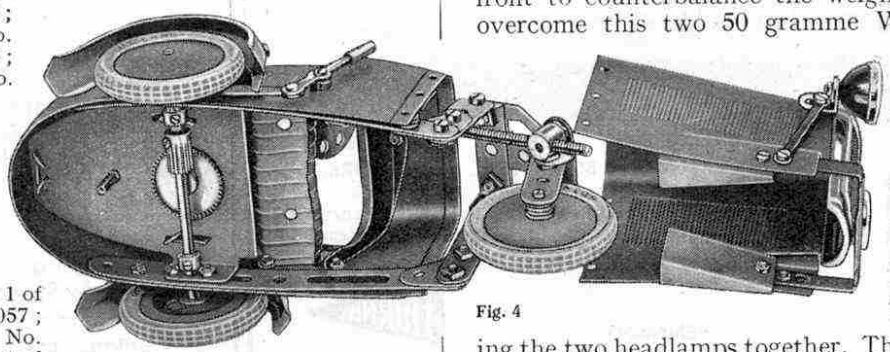

Fig. 4

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.