

Strips bolted to the Angle Brackets. A 1" loose Pulley is placed on one side of the wheel, and a 1 1/8" Flanged Wheel is fixed on the Rod at the other side.

A 1 1/2" Rod is fixed in the centre hole of Coupling 8, and this Rod is free to turn in two Fishplates 9, placed one above and one below the Coupling 4 and fixed in place by bolts screwed into the Coupling. The front mudguard consists of a Formed Slotted Strip and a 1 1/2" Strip which are bolted to a 1" Triangular Plate held by the same bolts that fix the Angle Brackets to the Coupling 8. The headlamp is a 3/4" Flanged Angle Girder. Wheel bolted to an Obtuse Angle Bracket that is fixed by a nut and bolt to the Coupling 8.

Each side of the sidecar is made from a 5 1/2" x 1 1/2" Flexible Plate braced along its lower edge by a 5 1/2" Strip 10, and extended by a 2 1/2" Curved Strip 11. The upper edge of the side is made from a 2 1/2" Curved Strip and a 4 1/2" Strip 12, and the rear edge is a further 2 1/2" Curved Strip. The sides are connected together by two 1 1/2" x 1/2" Double Angle Strips at the rear, and by one 1 1/2" x 1/2" Double Angle Strip at the front. The back is filled in by a 2 1/2" x 1 1/2" Flexible Plate bolted to one of the Double Angle Strips, and the nose is completed by two 2 1/2" x 1 1/2" Flexible Plates shaped as shown and attached to the sides by Angle Brackets.

The sidecar axle is a 1" Rod held in a Coupling that is fixed vertically to the side by a 1/2" Bolt passed through

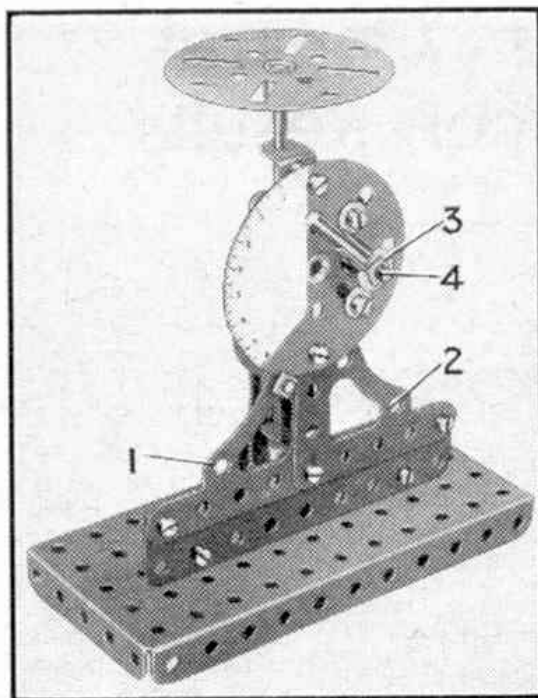


Fig. 3. A useful weighing balance for light articles.

the next-to-end hole of Strip 10.

The two bolts holding Strips 1 to the Motor are now removed, and two 1 1/8" Bolts are passed through the lower edge of one side of the sidecar and are fixed in position by nuts. The Bolts are then passed through Strips 1 and the Motor sideplate, and each is held in place by two nuts.

Our next model is a useful balance suitable for weighing light articles. Construction should be begun by bolting a 3 1/2" Angle Girder to a 5 1/2" x 2 1/2" Flanged Plate, and then attaching a 4 1/2" Flat Girder to the

Two Corner Gussets 1 and 2 are bolted as shown to the Flat Girder and these support a Face Plate.

The dial pointer consists of a 1" Rod held in a Rod and Strip Connector 3. The Rod and Strip Connector is fixed to the shank 4 of a Rod Socket, which is mounted on the end of a 1 1/2" Rod journalled in a hole in the Face Plate and in a Double Arm Crank bolted to it.

The 1 1/2" Rod carries also a Washer and a 1/2" Pinion 5. The Pinion engages the teeth of a 3 1/2" Rack Strip 6, which is bolted to a Collar 7, fixed to a 5" Rod. It will be found necessary to space the Rack Strip from the Collar by means of a Washer. The 5" Rod is free to move in the arms of a 3 1/2" x 1/2" Double Angle Strip 8, which is bolted to the Face Plate by means of 1/2" Bolts, Collars on the Bolts being used to space the Double Angle

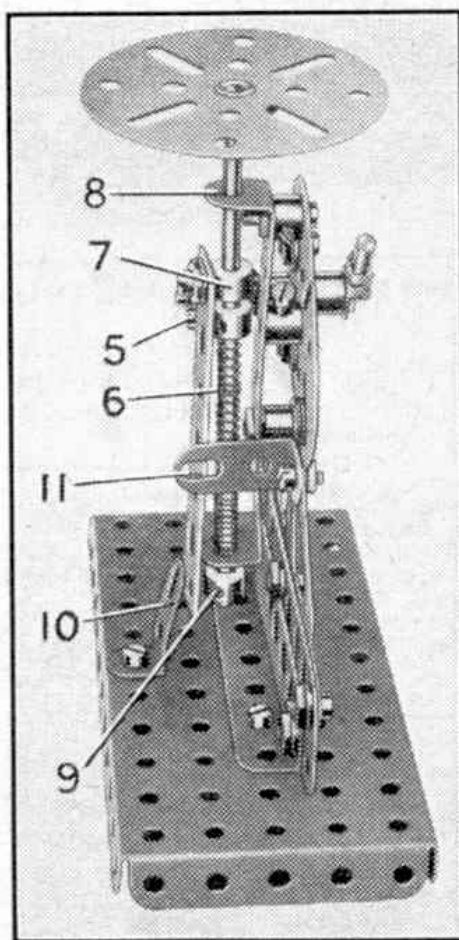


Fig. 4. A side view of the balance showing the constructional details of the mechanism.

(Continued on page 334)

The Short "Sealand"—(Continued from page 294)

folding card-tables and deep, turquoise-upholstered armchairs.

Such a standard of luxury would have been no use to poor little PK-CMA, for the sort of passengers she had to carry were men of the warlike Dyak nation, who invariably wear a short and extremely sharp scimitar, from which they are never parted. As a result, the first thing that happens when they sit down in an aircraft is that these ferocious weapons pierce the upholstery, and by the time the flight is over the constant movement quite often succeeds in slashing the seat to ribbons.

Fortunately, the "Sealand's" versatility enables it to take in its stride everything from Dyaks to duchesses, litters to lettuces, by land, sea or air, anywhere from the ice of Norway to the tropics. In an age when flying boats are out of fashion, it proves how disastrous it would be if we built only aeroplanes that need acres of concrete from which to take off. And, in doing so, it shows what a good thing it might be if the Air Ministry bought some "Sealands," so that a percentage of Coastal Command's ex-flying boat pilots could keep their hand in, just in case the people who see a future for flying boats are right after all!

Private Decorations—(Continued from page 304)

survivors from the wrecked hospital ship "Rohilla" at considerable personal risk.

The story of private medals for heroism actually goes back beyond the earliest days of official naval and military awards. The first British decorations were conferred by private individuals and corporate bodies. The Victoria Cross was not introduced until 1856, but the East India Co. presented medals for heroism in protecting their property as far back as 1791. A campaign medal in connection with the Battle of the Nile, in 1798, was given by Nelson's prize agent, A. Davidson, at his own expense.

New Meccano Models—(Continued from page 321)

Strip from the Face Plate. The Rod carries also four Compression Springs and a Collar, and on its lower end another Collar 9.

A 1" x 1/2" Angle Bracket 10 is bolted to the Flanged Plate, and together with a second similar part 11, prevents the Rack Strip from leaving the teeth of the Pinion.

The balance is calibrated by placing a series of correct weights on it and then marking on the dial the positions taken up by the pointer.



D. W. Swindells, Leeds.

whizzed in succession between two plates set at such a distance apart that only one can pass through at a time. Its use clearly will save a considerable time in banks, where more treasury notes have to be counted every day than most of us are ever likely to own.

Counting Notes by Machinery

How many pound notes could you count in an hour? Few of us will ever get a chance of finding out, but we should probably fall far behind an experienced bank cashier, who is said to be capable of counting five thousand in that time. He in turn is well-beaten by a machine that can run them through and record their number three times as quickly.

In this machine, now being made in Great Britain, the notes are

Right This Time!

On this page are portraits of A. H. Spinks, Liverpool and D. W. Swindells, Leeds, both prize-winners in our October "General" Competition. The two portraits appeared in the announcement of the results of this contest in the May "M.M." but inadvertently the captions were exchanged. This time we have got them right, and we hope that this will compensate the two competitors for their disappointment when the May issue appeared.



A. H. Spinks, Liverpool.

Wheel Rotates Once in Four Years

The owner of a Swiss calendar chronograph was greatly excited on the last day of February of this year.

"Look at this," he said, pointing to one of the dials of his watch. "For the last three years on the last day of February it has registered the 28th and then the pointer has moved on to the first of March. Now comes Leap Year and the hand is pointing to the 29th. And I haven't adjusted it either."

It was indeed the watch itself that had taken care of this extra day. Its mechanism includes a tiny wheel that has only one mission in life—to register the 29th of February once every four years. It actually turns round just once only in that interval, completing its full revolution punctually on the 29th of February in leap year, when this extra day is slipped into our calendar.

The particular watch that aroused this excitement shows also the phases of the moon and incorporates a stop watch that measures times to an accuracy of a fifth of a second.

This Month's Special Articles

	Page
Riding a Southern Main Line	
Diesel	290
by S. C. Townroe	
The Short "Sealand"	292
by John W. R. Taylor	
Training Centre with a Homely Touch	295
Portugal's Largest Bridge	296
Festiniog "Toy Railway"	299
by E. V. Clayton	
Model Yacht Racing	300
by H. C. Hirst	
Private Decorations	302
by Arthur Nettleton	
Trains that Record their Own Passage	308
by H. C. Towers, M.I.E.E.	
Robert Forrester Mushet	310
by E. N. Simons	

New Meccano Models

A Motor Cycle and Sidecar and a Useful Balance

THE neat motor cycle and sidecar shown in Figs. 1 and 2 is driven by a *Magic* Clockwork Motor built into the position normally occupied by the engine of an actual machine.

The frame of the cycle is made by bolting two $2\frac{1}{2}$ " Strips 1 on each side to the side-plates of the Motor. The Strips seen in Fig. 1 are fixed direct to the side-plate, but only temporarily, as at a later stage in the construction the bolts will have to be removed in order to fit the sidecar. The Strips shown in Fig. 2 are connected to $\frac{1}{2}$ " Bolts, each of which is attached to the Motor side-plate by two nuts. The Strips 1 are connected at their upper ends by $3\frac{1}{2}$ " Strips 2, which form part of the petrol tank.

Each side of the tank is completed by a further $3\frac{1}{2}$ " Strip 3, and this is linked by a Fishplate at its forward end to Strip 2. The front of the tank is filled in by four $1" \times 1"$ Angle Brackets, two of which are bolted to the Strips 2, while the remaining two are fixed to Strips 3. A Coupling 4 is connected to the latter pair of Angle Brackets by two bolts passed through the Brackets and screwed into tapped holes of the Coupling.

The rear wheel is supported on each side by a $4\frac{1}{2}$ " Strip 5 and a $2\frac{1}{2}$ " Strip 6. These Strips are attached to the main frame as shown in Fig. 2, and a $1\frac{1}{2}$ " Rod is mounted in the end hole of Strip 6 and the centre hole of Strip 5. The Rod is

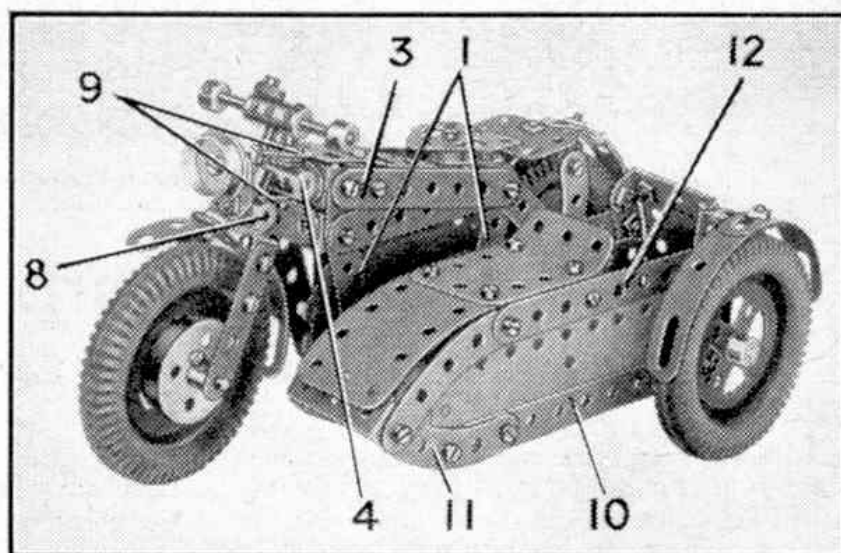


Fig. 1. A neat motor cycle and sidecar, which has a *Magic* Motor for its power unit.

fitted with a $1\frac{1}{2}$ " Pulley 7, a 2" Pulley and Motor Tyre, and a 1" loose Pulley. The $1\frac{1}{2}$ " Pulley is connected to the *Magic* Motor pulley by a Driving Band.

The driver's saddle is a Flat Trunnion that is attached by a $\frac{3}{8}$ " Bolt, which carries six Washers, to a 1" Triangular Plate. The Triangular Plate is bolted to two $1" \times \frac{1}{2}"$ Angle Brackets fixed between the rear ends of Strips 2. The rear mudguard consists of two Formed Slotted Strips bolted to a Double Bracket attached to the end holes of Strips 5. It is braced by a 2" Strip on each side. These Strips are passed over the rear axle, and are connected at their upper ends by a $1\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip that is bolted to the mudguard.

The front fork is made by joining together two $1" \times 1"$ Angle Brackets by bolts passed through the Brackets into the tapped holes of a Coupling 8. The front wheel is free to turn on a $1\frac{1}{2}"$ Rod passed through the end holes of 2"

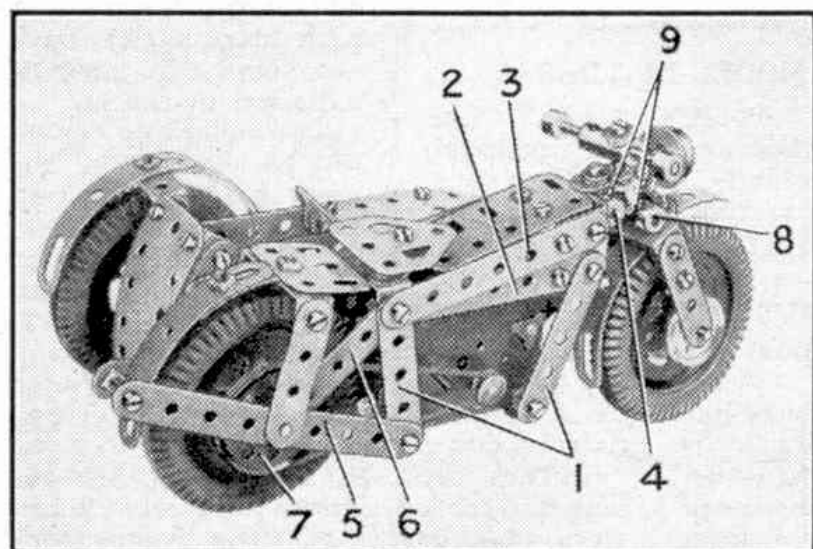


Fig. 2. Another view of the motor cycle and sidecar.