New Meccano Models

Oil Engine—Hammerhead Crane

THE working model heavy oil engine illustrated in Fig. 1 is begun by building up the base. On this two 3½″×2½″ Flanged Plates are mounted, and their flanges are joined by two 4½″×2½″ Flat Plates. The E120 Electric Motor is mounted in the box so formed and its pinion meshes with a 57-teeth Gear fixed on a 1½″ Rod journalled in the sideplate of the Motor and the left-hand 4½″×2½″ Flat Plate. The Rod carries also a ½″ Pulley.

The top of this box is partially covered by 2½″×1½″ Flexible Plates, which are fixed so that a space is left between them for the Driving Band operating the crankshaft. Two 2½″×2½″ Flat Plates are secured by Strips to the upper edges of the 4½″×2½″ Flat Plates, so that they protrude upward to form the ends of the crankcase. The front of the crankcase is provided with an inspection door, consisting of a 2½″×2½″ Flat Plate, to the centre of which a 2″ Pulley is bolted, and its handle is a 1″ Rod fastened in a Handrail Support.

Two Hinges and Angle Brackets fasten the door to a frame consisting of Strips, which is fastened to the two 2½″×2½″ Flat Plates of the crankcase. The top of the crankcase is covered by two 2½″×1½″ Flanged Plates, fixed in position with a space between them in which the piston can work.

The crankshaft is next built up as shown. The connecting rod is a 2″ Rod locked in a Coupling forming the "big end," and to it a 4½″ Rod is pivotally secured by a Swivel Bearing to represent the piston rod. The crank webs are Couplings fastened on the ends of two 4″ Rods.

A Boiler is used for the cylinder, and the piston rod moves up and down in guides formed by the centre holes of two 1½″×½″ Double Angle Strips fixed inside the Boiler.

Parts required to build model Oil Engine: 2 of No. 3; 4 of No. 5; 1 of No. 10; 19 of No. 12; 4 of No. 15a; 1 of No. 16; 1 of No. 17; 5 of No. 18a; 1 of No. 18b; 3 of No. 20b; 2 of No. 21; 1 of No. 22; 1 of No. 27a; 55 of No. 37a; 14 of No. 38; 2 of No. 48; 2 of No. 51; 3 of No. 52; 3 of No. 53; 7 of No. 59; 3 of No. 63; 2 of No. 72; 1 of No. 103d; 2 of No. 109; 4 of No. 111a; 2 of No. 118; 2 of No. 130; of 1 No. 136; 2 of No. 136a; 1 of No. 160; 1 of No. 162; 1 of No. 162a; 2 of No. 163; 1 of No. 164; 1 of No. 165; 2 of No. 166; 1 of No. 186; 1 E120 Electric Motor.

The Hammerhead Crane is illustrated in Fig. 2. The tower is constructed as shown, and a 3″ Pulley 3 is bolted to it. The main members 1 of the swivelling boom each consist of two 12½″ Angle Girders overlapped three holes, and they are connected at one end by a 3½″×½″ Double Angle Strip, and at the other end by a 3½″×2½″ Flanged Plate. A 2½″×½″ Double Angle Strip is then bolted to the first Double Angle Strip, and to its lugs are fastened 12½″ Strips, the free ends of which are attached to the girders 1.

The girders 1 are now connected with the lower members of the boom, which

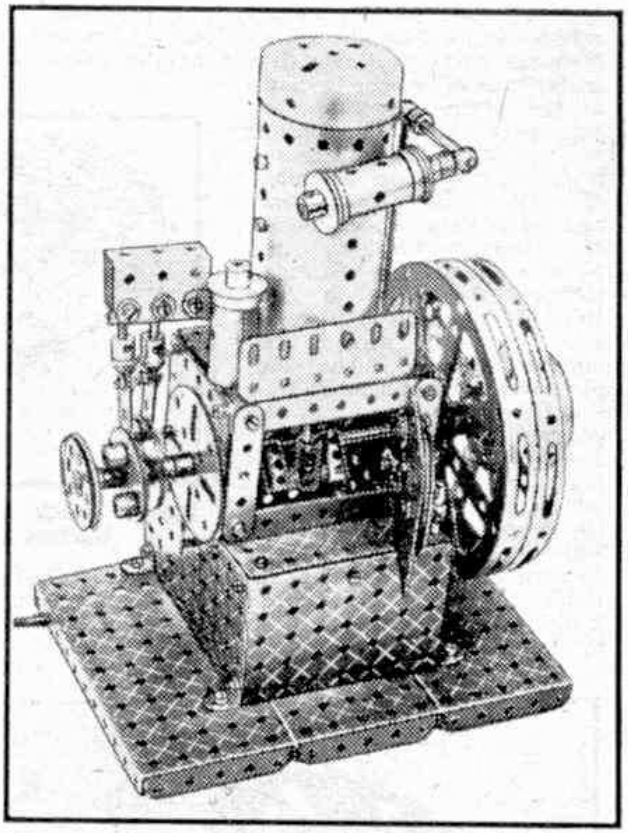


Fig. 1. This model heavy oil engine is driven by an Electric Motor concealed in the base.

consist of 12½″ Strips extended by 2½″ and 5½″ Strips. The latter are connected to the 3½″×2½″ Flanged Plate, and are joined also to the 2½″ Strips by further 5½″ Strips. The lower members of the jib are joined by 3½″ Strips that support also a 5½″×2½″ Flanged Plate 2, to which is fastened a 3″ Pulley.

The Clockwork Motor 4 is mounted on the Flanged Plate 2, and to its brake lever is pivoted a 5″ Rod by means of Collar 10. In a similar manner an 11½″ Rod 9 is pivotally attached to the reverse lever of

the Motor. Both Rods protrude through the 3½″×2½″ Flanged Plate at the rear end of the jib and are each fitted with a 1″ Pulley.

The jib is pivoted on a 3½″ Rod locked in the boss of the upper 3″ Pulley and retained in position by a Spring Clip below Pulley 3.

The hoisting trolley is a 2½″×1½″ Flanged Plate, to each flange of which is bolted a 1½″×½″ Double Angle Strip. The latter provide bearings for the 3½″ Rods that carry the 1¼″ Discs forming the wheels. Trunnions bolted to the Flanged Plate carry a 2″ Rod, on which are two 1″ loose Pulleys.

Cord 8 is tied to the rear of the trolley, then wound a few times round Crank Handle 7 and led around a 3½″ Rod journalled at the front end of the jib. It is then tied to the front of the trolley.

The hoisting drum 5 is driven in the following manner. A ½″ Pulley on the Motor shaft is connected by a Driving Band to a 1″ Pulley fastened on a 2″ Rod journalled in the side plates of the Motor. A second Driving Band connects the 2″ Rod to a 1″ Pulley on Rod 5. The hoisting Cord 6 is tied to a Cord Anchoring Spring on Rod 5 and is led over one of the 1″ Pulleys in the hoisting block, over the second 1″ Pulley in the hoisting trolley and finally is tied to the boom.

The sides of the control cabin consist of 5½″×2½″ Flexible Plates joined at the rear by a 3½″×½″ Double Angle Strip and two 2½″×2½″ Flexible Plates.

Parts required to build the model Hammerhead Crane: 12 of No. 1; 14 of No. 2; 4 of No. 3; 2 of No. 4; 8 of No. 5; 2 of No. 6a; 4 of No. 8; 4 of No. 11; 16 of No. 12; 4 of No. 12c; 1 of No. 13; 1 of No. 15; 1 of No. 15a; 4 of No. 16; 2 of No. 17; 2 of No. 19b; 1 of No. 19h; 4 of No. 22; 2 of No. 22a; 1 of No. 23; 1 of No. 23a; 14 of No. 35; 105 of No. 37; 5 of No. 37a; 12 of No. 38; 2 of No. 40; 2 of No. 48; 1 of No. 48a; 2 of No. 48b; 1 of No. 51; 1 of No. 52; 2 of No. 53; 2 of No. 54a; 1 of No. 57c; 4 of No. 59; 2 of No. 111; 1 of No. 111a; 2 of No. 111c; 2 of No. 125; 2 of No. 126; 2 of No. 126a; 1 of No. 147b; 2 of No. 155a; 2 of No. 186; 2 of No. 187; 4 of No. 189; 4 of No. 190; 4 of No. 192; 1 of No. 198; 4 of No. 217a 1 No. 1a Clockwork Motor.

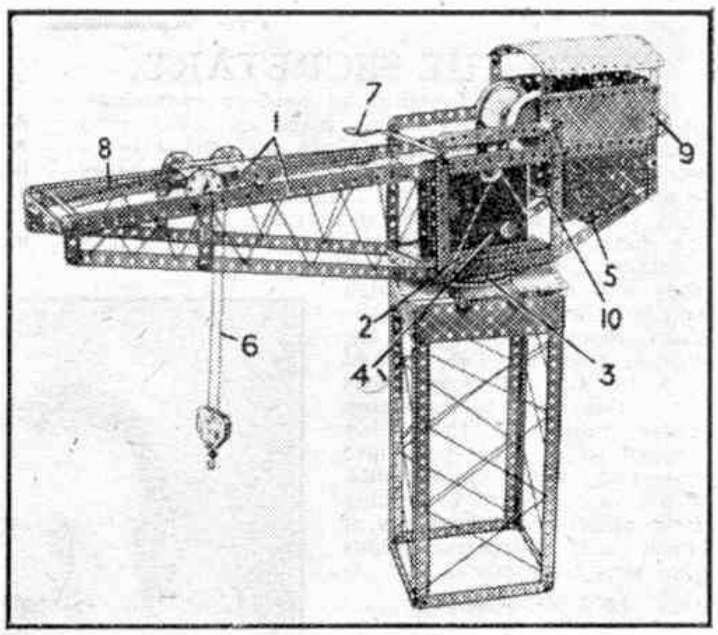


Fig. 2. A model hammerhead crane powered by a No. 1a Clockwork motor.

Novel Model-Building Contest

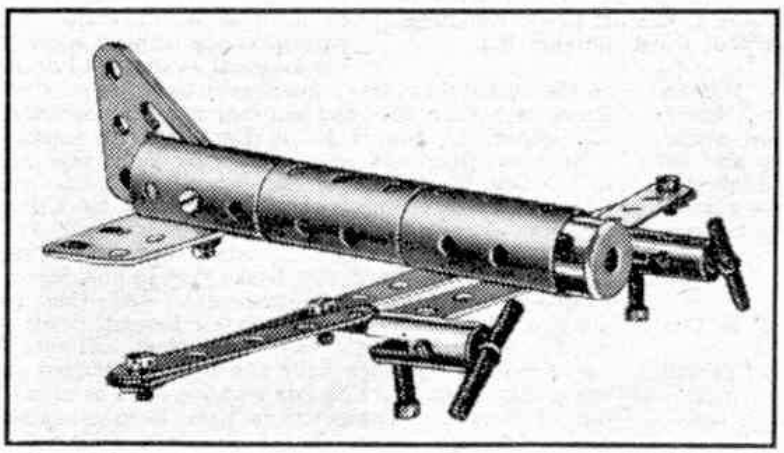
We wish to remind readers that there is still time to submit entries for the novel "*Birds and Beasts*" Model-Building competition announced in the "*M.M.*" for July. In this Contest models of all living things—except human beings—may be entered. Curiously life-like models of this kind can be constructed from Meccano parts, and the competition offers very wide scope for originality.

Competitors may build their models either solid or in the flat to resemble a drawing, according to their wishes and the quantity of Meccano parts available. Any number of parts may be used.

After completing their models competitors should send either photographs or good sketches of them to "*Birds and Beasts Model-building Competition, Meccano Ltd., Binns Road, Liverpool 13.*"

The Contest will be divided into two sections—A, for competitors of all ages living in the British Isles; B, for competitors of all ages living overseas. The closing date for Section A is 31st August 1945, and for Section B, 28th February 1946.

The Prizes offered in each section are as follows. First, £2/2/–; Second, £1/1/–; Third, 10/6. There will be also several consolation awards.



This miniature model transport monoplane won Third Prize for C. E. Wrayford, Bovey Tracey, in the May "Simplicity" Competition.