

# New Meccano Models

## Fence-Making Machine—Log Saw

OUR new models this month are of a most unusual type. The first to be described is a fence-making machine and is illustrated in Fig. 1. This model is based on a machine designed to produce the special wood and wire fencing used for enclosing fields, and it works most realistically. The model can be used with short pieces of round or square section wood, such as meat skewers; but if these are not available, Meccano Rods make a useful substitute. The model is quite simple in construction and does not require a large Outfit.

The base is made by connecting two  $12\frac{1}{2}$ " Angle Girders 1 at one end by two similar Girders 2 and 3, and at the other end by a  $12\frac{1}{2}$ " Angle Girder 4. Two  $9\frac{1}{2}$ " Angle Girders 5 are bolted to  $5\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips fixed to Girders 2 and 4.

The housing for the operating mechanism is assembled next. It is formed by  $4\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flat Plates bolted to the Angle Girders 2 and 3 as shown in the illustration, and the Flat Plates are joined across at each of their upper corners by  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips 6 and 7. A Double Bent Strip is bolted to Double Angle Strip 7, and the operating handle is mounted in this assembly. The handle consists of a Bush Wheel fitted with a Threaded Pin, and it is fixed on a  $1\frac{1}{2}$ " Rod. The Rod carries also a  $\frac{1}{2}$ " Pinion 8.

Two 5" Rods 9 and 10 are mounted in the  $4\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flat Plates, and each is held in position by a 1" Sprocket and a Collar. The 1" Sprockets are linked by Chain, so that the Rods rotate simultaneously. Rod 9 is fitted with a  $1\frac{1}{2}$ " Contrate that meshes with the  $\frac{1}{2}$ " Pinion 8. Rod 10 carries a Worm that engages a  $\frac{1}{2}$ " Pinion 11 fixed on a 4" Rod mounted in  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips bolted between the Flat Plates. The outer end of the 4" Rod carries a 1" Sprocket connected

by Chain to a similar Sprocket on the winding drum shaft.

The winding drum is a Boiler complete with Ends. A Bush Wheel is bolted to each Boiler End, and these are used to fix the drum on its shaft. The shaft is a  $6\frac{1}{2}$ " Rod and is mounted in  $2\frac{1}{2}$ " Triangular Plates bolted to the Girders 5.

The wire used in the fence is carried on bobbins fixed to the driving Rods 9 and 10. Each bobbin assembly consists of two  $1\frac{1}{2}$ " Rods fixed in a Coupling locked on one of the driving Rods. The Couplings are not fixed exactly in line, but are staggered slightly so that they can rotate freely. It is important to make sure that the Couplings are fixed on their shafts in the same relative positions to each other. The wire is wound round three Collars that are free to turn between  $\frac{3}{4}$ " Washers on each of the  $1\frac{1}{2}$ " Rods, and the free parts are held

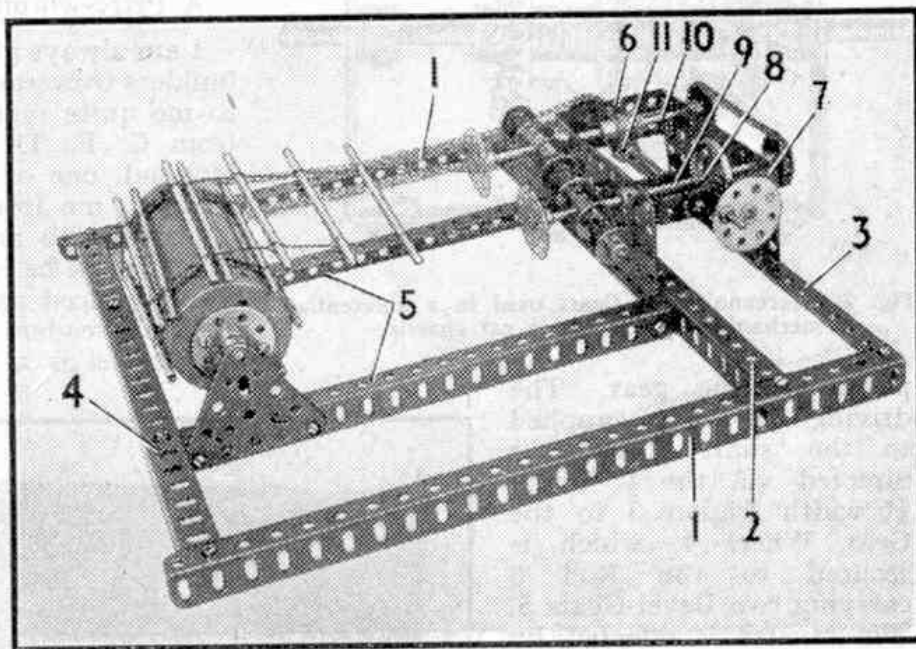


Fig. 1. A fence-making machine that is interesting to construct and operate.

in place by Collars. A Bush Wheel is fixed at the extreme end of each of the Rods 9 and 10.

Four separate lengths of wire are used in the machine, each being wound round one of the bobbins and then passed through the Bush Wheel on the same Rod. The wire used should be pliable, but stiff enough to retain the twists and hold the fencing firmly in position. Copper wire of about 22 S.W.G. is ideal for the purpose. The ends

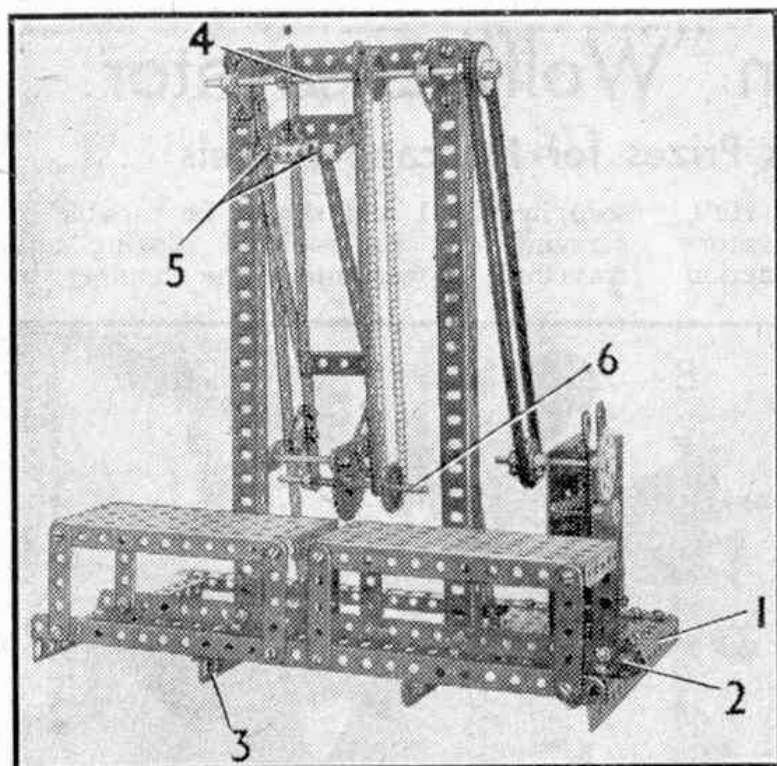


Fig. 2. A simple model of an unusual type of wood sawing machine.

of the wires are twisted together in pairs, and each pair is fastened firmly to the winding drum.

The machine is operated by placing a Rod or a length of wood between the pairs of wires and then turning the handle so that the Rod is gripped firmly between the twisted wires. A second Rod is then inserted at the spacing required, and the process is carried on until the desired length of fencing is made. The number of turns given to the handle after the Rods are in position determines the distance between the posts of the fence, and the same number of turns must be made at each step in order to get an even result.

Parts required to make the Fence-Making Machine: 5 of No. 8; 2 of No. 8a; 1 of No. 14; 2 of No. 15; 1 of No. 15b; 5 of No. 18a; 5 of No. 24; 2 of No. 26; 1 of No. 28; 1 of No. 32; 36 of No. 37; 5 of No. 38; 8 of No. 38d; 1 of No. 45; 4 of No. 48a; 1 of No. 48d; 2 of No. 53a; 20 of No. 59; 2 of No. 63; 2 of No. 76; 1 of No. 94; 4 of No. 96; 1 of No. 115; 1 of No. 162.

Vast numbers of trees are cut down every year and converted into logs, planks and boards, and the many different types of machines used in these processes make very interesting subjects for Meccano models. One of these machines forms the subject of our second model and is illustrated in Fig. 2. The model is a reproduction of a small sawing machine that is sometimes used for cutting boards. The cutter is of the circular type, and revolves at high speed. In this type of machine the saw is mounted in a pivoted frame suspended

freely so that it can be drawn forward as the saw cuts through the wood.

It is best to begin construction of this model by assembling the base and saw bench. The base is rectangular in shape, and is constructed from two  $12\frac{1}{2}$ " and two  $7\frac{1}{2}$ " Angle Girders. One of the  $12\frac{1}{2}$ " Girders overlaps the  $7\frac{1}{2}$ " Girder 1 by one hole and a second  $12\frac{1}{2}$ " Girder 2 is also bolted in position in the same way. The saw bench consists of two  $5\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plates, and these are attached to eight vertical  $2\frac{1}{2}$ " Strips bolted to the  $12\frac{1}{2}$ " Angle Girders of the base. A slight gap is left between the  $5\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plates to allow the circular saw to be moved across the work. The power unit is fixed to a platform bolted into a corner of the base. The platform is made from two  $3\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plates, and is connected to the  $12\frac{1}{2}$ " Angle Girders

by a  $5\frac{1}{2}$ " Angle Girder. A second  $5\frac{1}{2}$ " Girder is bolted in position as indicated at 3.

The saw frame is built from two supports each consisting of two  $12\frac{1}{2}$ " Angle Girders bolted together to form U-shaped girders.

The power unit is a No. 1 Clockwork Motor, attached to Angle Brackets bolted to the platform formed by the  $3\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plates. The drive from the Motor is geared down through a  $\frac{1}{2}$ " Pinion on the Motor driving shaft to a 57-tooth Gear fixed on a Rod mounted in the Motor sideplates. This Rod carries also two 1" Pulleys, and the drive is transferred from these to similar Pulleys on a  $6\frac{1}{2}$ " Rod 4 by Driving Bands. Two Driving Bands are used in order to eliminate slipping. Rod 4 is mounted in Trunnions bolted to the saw frame, and the saw arm pivots on it.

The saw arm is built by connecting two  $7\frac{1}{2}$ " Strips by two  $1\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips and bolting to these a frame of  $2\frac{1}{2}$ " and  $5\frac{1}{2}$ " Strips. Two 1" Rods 5 joined by a Coupling pass through the  $2\frac{1}{2}$ " and  $5\frac{1}{2}$ " Strips and are held by Collars. A Sprocket on Rod 4 drives a Sprocket on Rod 6, which carries a  $1\frac{1}{2}$ " Sprocket Wheel forming the saw.

Parts required to build the model Log Saw: 2 of No. 1; 2 of No. 1a; 2 of No. 2; 12 of No. 5; 7 of No. 8; 2 of No. 8b; 2 of No. 9; 4 of No. 12; 1 of No. 14; 1 of No. 16; 1 of No. 16a; 1 of No. 17; 2 of No. 18b; 4 of No. 22; 1 of No. 26; 1 of No. 27a; 2 of No. 35; 65 of No. 37; 2 of No. 48; 1 of No. 48d; 2 of No. 52; 2 of No. 53; 6 of No. 59; 1 of No. 63; 1 of No. 94; 1 of No. 95a; 2 of No. 96; 2 of No. 126; 2 of No. 126a; 2 of No. 186e. 1 No. 1 Clockwork Motor.