# The Lawnmower

*A colourful toy to keep the lawn or carpet in trim, William Burston's lawnmower will whir like the real thing as the blades go round*

CONSTRUCTION of the lawnmower is best tackled by breaking it down into the component parts and dealing with each in turn.

**Cogs**

The drive and blade cogs complete with links are probably the most involved parts and it is best to start with these. The drive cogs give a ratio of two to one and are made from ½in. ply. Careful setting out and cutting to shape are important here if the chain is to run smoothly.

**Chain links**

These are made from ⅝in. wide strips of ⅛in. ply and, due to the numbers involved, simple production methods and jigging are called for to guarantee repeat shaping and accurate drilling. Start with pieces 1⁵⁄₁₆in. long and tape two pieces together with double-sided tape to temporarily hold them both for drilling the 30 loose fit holes of 1⁷⁄₆₄in. diameter in the inner series of links and the 30 fixing holes of ¼in. diameter in the outer series of links. Use a jig to accurately position the links in a drill press and also, once the holes are drilled, use a pin pivot on a sanding disc table so that you can round the ends to a consistent radius. In case of any slight discrepancies in the drilling operations, mark the matching pair of sides to each link for easy identification when putting all together.

There are 30 link pins required and these are formed from ⅜in. dowels shouldered at each end to ¼in. diameter. Again some sort of jigging is necessary to ensure correct spacing of the shoulder, but this will probably have to be arranged according to your lathe set up. Perhaps the simplest method is to use ¼in. inside diameter brass tube set up as a sleeving to the dowel and also held in the chuck so that the end of the tube indicates the precise shoulder to be formed on the dowel. A small allowance should be made for projecting through and cleaning up once the chain has been assembled.

Pins, links and cogs are all painted as individual components before assembly with the exception of the face sides of the outer links. The reason for leaving the outer faces is that these are cleaned up after assembly to ensure pins are flush with the faces.

**Side plates**

The shape of these components is shown against a squared grid background. Again prepare both parts whilst held together with double-sided tape to ensure matching shape and accurately matching holes for the four ½in. dowel spacers plus the blade and roller spindles as well as the handle locating dowels and screw fixing points. It is worth noting here that the dowel spacers are again shouldered, and reduced to ⅜in. diameter where they locate in the side plates.

**Rear roller**

This component is made up as a piece of stave work with eight pieces of beech 8 by 2¼ by ⅞in. bevelled at the edges to form what is in effect a coopered cylinder. To turn this to shape on the lathe and to form the recesses at each end in which 6in. diameter pieces of ½in. ply are fitted, further pieces are added prior to assembling the cylinder. These take the form of two pieces 6 by 1¼ by ⅞in. which are screwed on to be centrally located within the cylinder and to provide further support for two end pieces which will take the headstock drive and tailstock centres.

**Front roller**

This is a straightforward piece of spindle turning with the roller turned up from a piece of 9 by 1½in. beech with ½in. pins turned on the end for locating in the front roller arm supports. These, incidentally, are at a fixed height, but there is little reason for making them adjustable.

**Cutting blades**

The cutting cylinder consists of six blades 8 by ⅝ by ⅛in. and these are set into three support discs of 2½ by ¼in. ply. Whilst it is probably easiest to cut the slots together at 90 degrees to the surface, it is more realistic to have them set in slightly at an angle in which case the slots could be cut with a radial arm saw with the blade slightly canted.

When setting out for the assembly, mount the discs on the spindle with spacing pieces and rotate the discs to give the correct amount of 'twist' to each blade.

**The clicker**

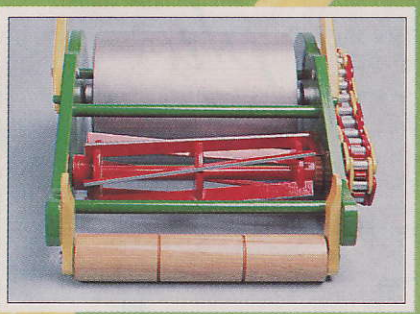
The clicker is simply made out of a piece of 2 by 1 by ¼in. beech slit at one end to hold a piece of ¼in. wide flexible plastic. This is 'flicked' by a 1¼in. diameter toothed cog in ¼in. ply. The cog of course is secured directly onto the blade drive spindle in the final assembly.

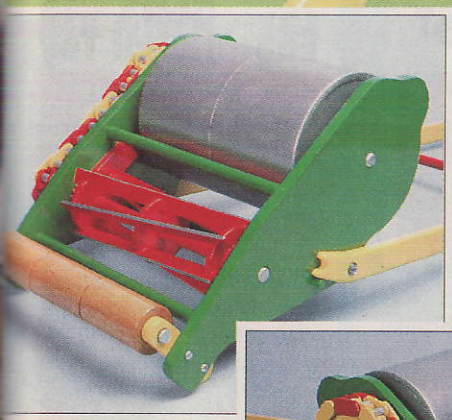
**Handle**

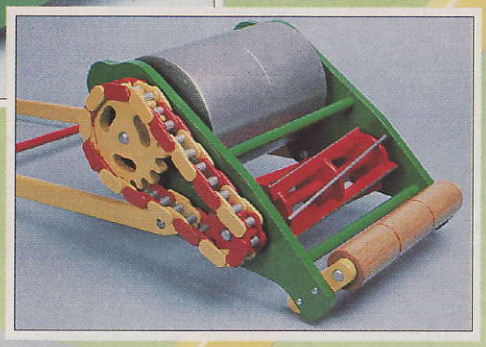
Again when shaping this, tape the two piece together temporarily with double-sided tape to ensure matching shapes and holes.The cross bars are again shouldered ½in. dowels.

**Finishing**

Paint or varnish all pieces prior to assembly, taking care not to go over areas which are to be glued. When completed, it is then a question of getting your youngster in training for the time when he can take over the real task of cutting the grass while you relax.







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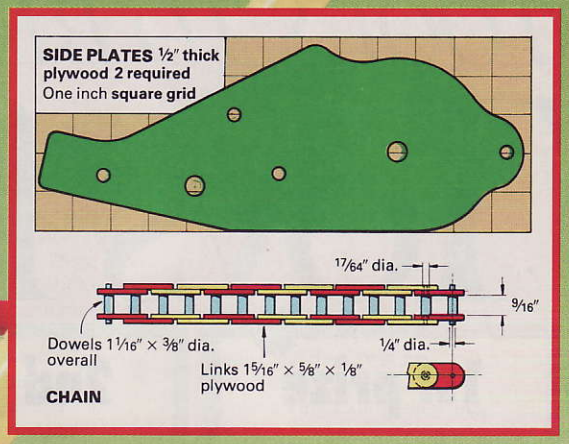
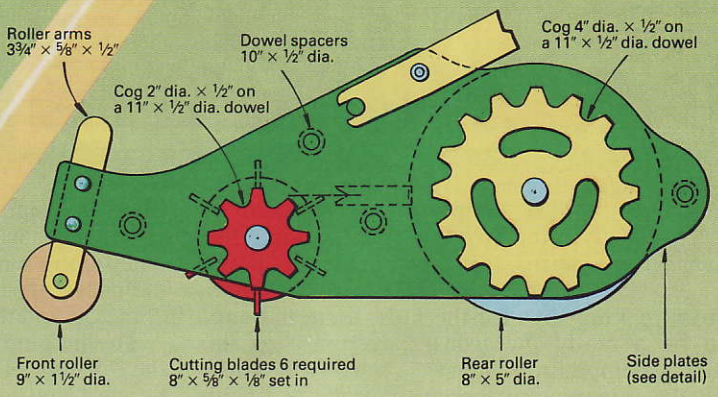
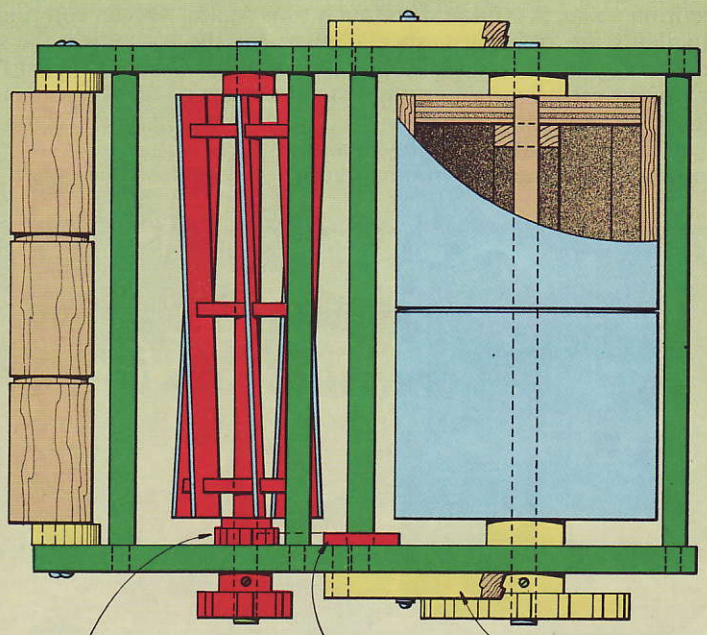



***A sturdy action push-along, this lawnmower will prove great fun. Note that the handle should be located on the projecting dowel pin.***




**SIDE VIEW WITH CHAIN OMITTED**




**PLAN VIEW**