Hobbies WEEKLY

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A Combined Garden Roller and LIGHTWEIGHT TRUCK

AS well as being a lightweight useful truck in the garden or allotment for carrying sacks of potatoes, turnips, carrots, cabbages and other vegetables, the same truck serves as a lawn roller. The clipped expanse of grass is not rolled out in the usual way, because the circumference of the roller is split up by 1½in. spaces or thereabouts.

Consequently, when the truck is loaded with a sack of earth, or sand, or stones, to give it weight, the roller makes a neat, attractive "treaded" pattern on the lawn. Children will delight in using the novel truck-cum-roller.

To save wood and enable small, narrow cuttings to be used up, a simple design has been drawn. The sketch at Fig. 1 gives a rough idea of the finished work, whereas the side elevation at Fig. 2 explains the method of construction.

Preparing the Sides

The truck sides are prepared first, ⅞in. thick deal being used throughout. The shafts are shaped from pieces measuring 3ft. 6ins. by 3ins. The body side pieces consist of an upright 10ins. long. To this is dowelled a cross piece 17ins. long, and to the latter are dowelled four uprights 7ins. long.

The width of the wood is 2ins., with the four shorter uprights kept 2ins. apart. The five uprights are dowelled to the shafting 2ins. inwards from the rear end. A leg piece—measuring 11in. by 2ins.—is dowelled to the shafting 20½ins. inwards from the handle end and strengthening at the joint by means of braces of wood 3ins. square at the corners.

Roller Axle

The braces are glued and screwed on. The roller axle pivot support is cut from a piece of shelving board, or end of a box, measuring 10ins. by 8ins. It is dowelled to the shafting 5ins. inwards from the rear end, all of which can be followed by referring to the diagrams at Fig. 2.

The back end of the truck consists of a cross piece 18 ins. long by 2ins. To this is dowelled four uprights 7ins. by 2ins., keeping them 2ins. apart. A bottom, supporting rail 18ins. by 2ins. is slotted, as shown, then nailed or screwed to the back end uprights.

At this juncture prepare five cross-pieces 18ins. by 2ins., including one 16¼ins. by 3ins. You also require two corner braces cut the same size and shape as those used.

The Assembly

Now, to connect the two side shapes together, screw or nail the

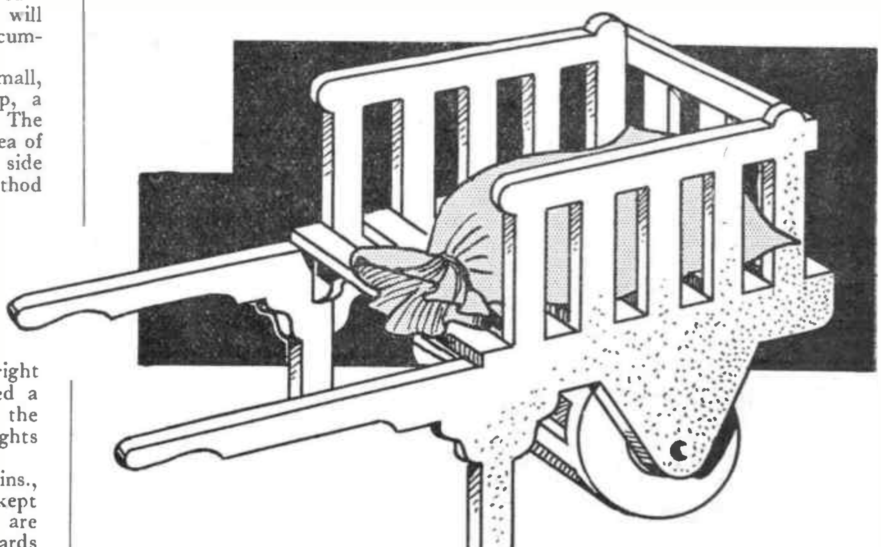


Fig. 1—This completed truck for garden use is economically and easily made

back end to the shafting and rear upright. Add the five cross pieces, these going between the smaller uprights, flush with the outside edges of the shafting.

Having added the 3in. wide cross piece *between* the shafting, directly under the foremost cross piece, attach the corner braces to it and the leg, at the inside. The rear end view partly shows them attached.

line having a 4¼in. radius is scribed. By setting the compasses to scribe a 1½in. diameter circle, the width of the slots can be ticked off by setting the compass point on the inner circle where the divisional lines cross it

Half of the marking off is shown. It is a simple plan to carefully mark the depth of the slots (¾in.) and width with a set-square, particularly the upright slots and the horizontal ones.

the laths sit up slightly. This is necessary, for the lath surfaces should not be flat. The surface of each lath is planed to suit the contour of the discs, and in view of this, all nails should be punched, or if screws are used, these should be deeply countersunk.

Attaching the Roller

The roller, when made, is attached between the truck supports by means of square-headed coach screws 3ins. long by ⅜in. thick. When obtaining these screws at a hardware shop, also get four suitable metal washers.

Bore a ⅜in. hole in the truck suppor

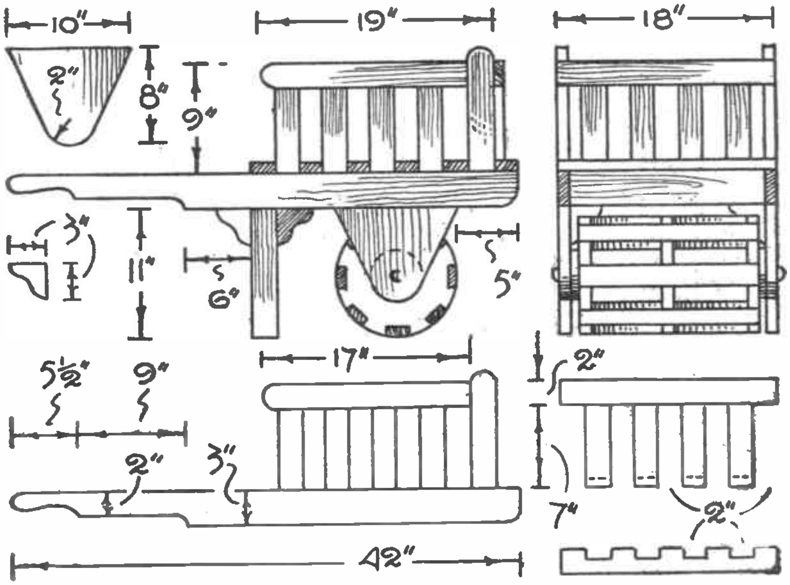


Fig. 2—Side elevation with details of various parts

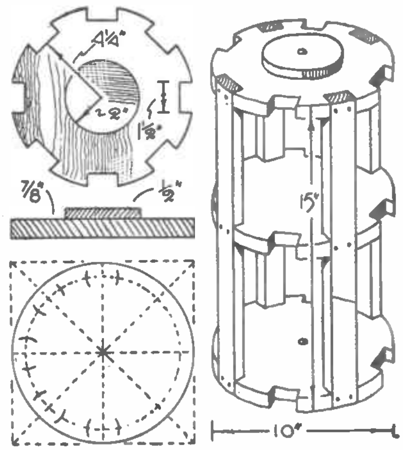


Fig. 3—Details for construction of roller

By the way, it is assumed, of course, that the truck sides are, after being dowelled and allowed to set, smoothly planed and glasspapered prior to assembly, as explained. All sharp edges should be removed by rubbing with glasspaper.

The Cylinder

The wooden cylinder, or roller, is now made. First of all, three prepared discs of wood are wanted, marking and cutting these from 10in. by 10in. by ⅞in. pieces of wood.

As can be seen at Fig. 3, the discs are slotted to take eight laths of wood 1½ins. wide. To mark out the position of the slots accurately, first rule straight lines from corner to corner, as shown by the dotted lines, then rule a central upright line and a horizontal line.

The diameter of the discs are then scribed with the compasses, the radius being 5ins. An inner radii

The other four slots and their true shape can be easily judged by the eye.

Building the Roller

Having slotted the edges of the discs, attach a 4in. diameter by ½in. to the centre of two of them, these discs serving as hubs at each end of the finished roller. You now need eight laths of wood 15ins. by 1½ins. by ⅞in.

Nail these to the disc slots by first attaching one to the outside discs. The third disc, when centred between, is then attached. A second lath is affixed to the slots directly opposite the preceding one.

Two laths are then attached to the slots at right angles to the previous ones dealt with. The four vacant slots are then fitted with the remaining four laths. We show the first four laths attached in the constructional view at Fig. 3.

Now, as you will find, the edges of lugs. Central holes are bored through the ends of the roller, using a 5/16in. bit. From this procedure it will be seen that the bolts are a tight fit in the roller ends, yet free to turn in the truck supporting pieces.

Pivot the roller in place by setting it between the supporting lugs. Slip a washer up to the head of each coach screw, then push the threaded end through the holes in the support lugs and screw it into the roller ends, using a suitable spanner or monkey wrench. To prevent undue rubbing, a washer should go between the support lugs and hub discs of the roller.

To complete the work, give it a coat of light green paint. The roller may be painted black, if desired, coating the inside as well as the outside. This is a tricky job, but it can be done, especially with a long-handled brush. Apply oil to the bearings to prevent squeaking.

POINTS TO REMEMBER IN GLUING—

GLUE, like many other things, is in short supply, which should remind us always to use it sparingly. It is wrong to apply to any work thickly. Put it on evenly and with a thin film to cover the whole surface. If the material is smooth gash a few rough line cuts into it with a knife or chisel to allow the adhesive a better grip. When you apply the glue with your finger and rub it over the surface, wipe your finger immediately with a wet rag of cold water. Otherwise the glue will harden and be most difficult to get off. Always weight or clamp a glued joint until the glue has become hard, and add any screws or nails before doing this.

Here are complete details for making another simple

HOLLOW SAILING BOAT

WE have already described in these pages (see Hobbies Weekly dated May 17th) the making of a simple sailing boat. Here are instructions for another quite as easy to make, but fitted with different type of sails and keel. It has a deck length of 15ins. and the type of yacht we are about to describe is seen in Fig. 1.

The hull should be made from yellow pine or white pine in boards ½in. thick. The overall length is 15ins. while the beam is 4ins. A cross section through the hull is given in Fig. 2. This also clearly indicates the principle of gluing up and shaping the four pieces of wood, as well as how the keel is " let in " the lowermost member.

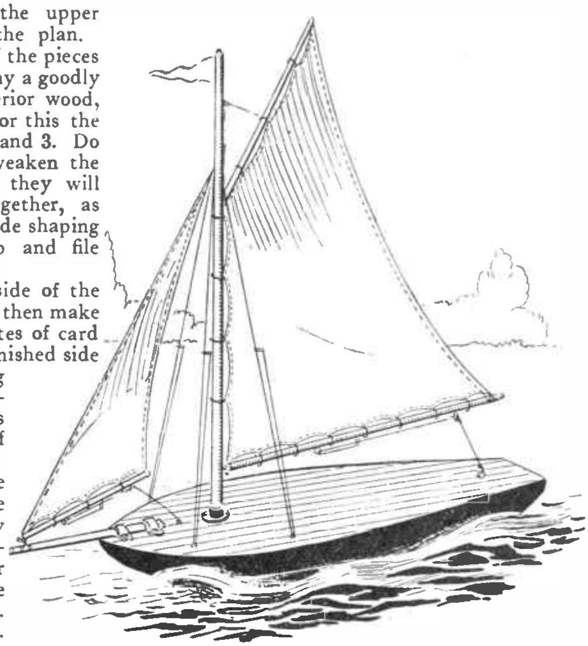
Hull Parts

In preparing the size and the shaping of each piece take the plan and section Fig. 3 as a guide. The lower diagram here gives a longitudinal section showing the actual length of each piece before shaping, with the dotted line showing to what extent the is wood cut away to get the graceful curve of the hull.

The top layer, A, will measure 15ins. by 4ins., the next layer, B, 14ins. by 4ins., layer C, 12ins. by 3¾ins. and layer D, 9⅝ins. by 3¼ins. In this latter piece a slot will be cut centrally 7⅝ins. long by ⅜in. wide to accommodate the keel shown in outline in Fig. 4.

Having cut the four pieces described above to the sizes given, set out the curved outline in Fig. 3 and according to the square on the upper diagram which is the plan.

Next from each of the pieces A, B and C, cut away a goodly portion of the interior wood, following carefully for this the two sections Figs. 2 and 3. Do not cut away to weaken the parts, however, as they will finally be glued together, as shown and the outside shaping done with the rasp and file and glasspaper.



Finish off one side of the hull completely and then make two or three templates of card to fit against the finished side of the hull by cutting away the card gradually until it takes the exact profile of the curve.

Treat each profile like this, making one to fit the hull say 3ins. from the pointed bow, another amidships and the third at about 4ins. from the stern end. These templates are then used for the shaping of the other side so both are symmetrical and the balance therefore correct.

Keep testing the shaping as it is done with the rasp until the three templates fit closely against the side in the three positions.

Waterproof marine glue must be used for sticking the planks together and this must be quite hard before any shaping is attempted.

The shape of the deck is got from the half diagram in Fig. 3, A. Here the squares are again 1in. and the curved line can easily be followed through each square. Trace off the one half and repeat it for the second half.

Then outline thecomplete deck on to ⅛in. wood, cut it with the fretsaw, glue it down to the hull, adding small brass fret pins at ¼in. intervals all round the edges. In Fig. 3, B, an exact profile of the hull, taking it longitudinally, is shown. A card profile of this may be made and the shaping tested from time to time during this work.

The deck should be varnished and lined in with indian ink to represent the planking. A second coat of varnish should be added over this.

Before fixing the deck a block of wood should be glued where the mast will come, then a hole ⅜in. diameter may be bored through the deck and the block and a brass collar to fit round the mast screwed to the deck (see Fig. 5).

The keel joint should be well-made and glued up, and the inside of the hull given a coat or two of good

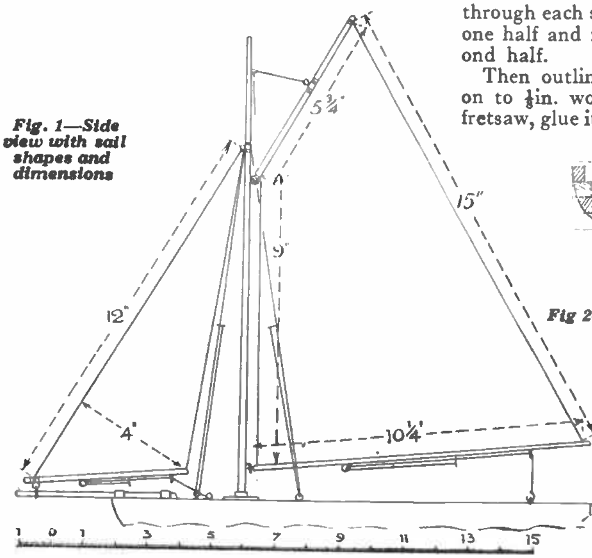


Fig. 1—Side view with sail shapes and dimensions

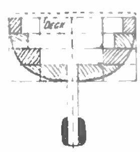


Fig 2—Hull section

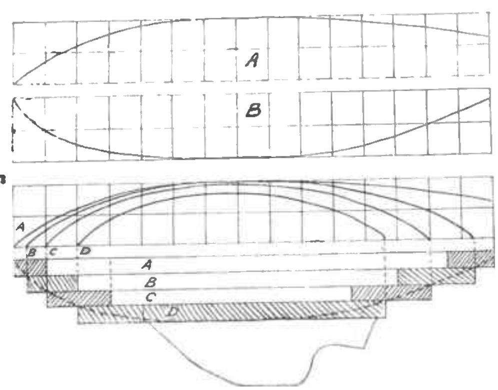


Fig. 3—Deck plan and section of hull parts

varnish before the deck is put on. Lead must be added to the keel according to the dotted line in Fig. 4 and the section, Fig. 2.

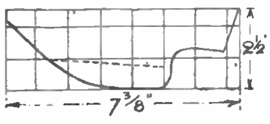


Fig. 4—Keel shape

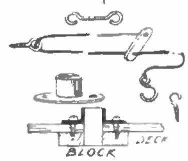


Fig. 5—Running tackle

Cut the lead and beat it to shape and form holes in it for screwing it with brass screws to the wooden keel.

Give the hull a coat of good oil paint and when this is dry finish off with two coats of cellulose enamel or ordinary enamel. That part of the hull below the waterline should be done in some contrasting colour. The waterline is found by gently lowering the hull into water.

The lengths of the mast and spars can be got by scaling them direct from Fig. 1. The mast is a length of ⅜in. or ¼in. dowel rod tapered slightly towards the top. The main boom and gaff to which the mainsail is attached, are lengths of ¼in. rod tapered and made smooth with fine glasspaper.

The main boom is fitted with a screw eye and jointed to the mast by a screw hook flattened out as shown. Screw eyes are also fitted to which the running lines are threaded through these being shown in Fig. 5 The lines are made adjustable for length by clews of wire, ivorine or brass as also shown in Fig. 5.

Bowsprit

The bowsprit is made from round rod and flattened where it meets the deck. It is there held to it by a shoe and band of brass. The rigging generally can well be understood from the sail plan, Fig. 1.

Sails

The sails can be cut from calico or Union silk. Draw the patterns for these on stiff paper from the measurements given, allowing about ½in. all round for hemming. Lay the patterns on the material and cut round. Hooks are attached to each corner, and rings to attach the mainsail to the mast and boom.

Run a line from the gaff through an eye near the top of the mast and carry the line to a cleat screwed in near the base of the mast.

The jib sail is bound to the point of the jib boom and to a screw eye in the mast. Stay lines from near the top of the mast run down and fix to eyes run into the outer parts of the deck. The mast and the boom and spars should be varnished.

See that the eyes or staples for all lines are fixed strongly, so they do not jerk out suddenly in a gust of wind.

Full-size Patterns given on Cover iii for this novelty—

THE "WALKING WITCH"

HERE is a quaint "walking" model that will amuse children for hours on end. The witch is sure to fire the imagination of the kiddies. Witches are usually ugly old hags, according to most fairy stories, and so—by way of a change, again—we have tried to make our walking witch a kindly old soul!

The whole affair consists of five main pieces of wood, that is, the centre part, the leg disc, two cover pieces and the hand stick. To help you cut the parts to correct size and shape also in finishing the details of features and outlines, full-size patterns are printed on Cover iii of this issue.

Marking the Parts

As you will probably want to have the features on both sides of the wood you should take tracings of the *outlines* of the parts rather than paste the pattern to the wood. You will, as a result, not cut up one of the pages. The patterns can be referred to for guidance, moreover, at some other time when you may be asked to make the novelty again.

The centre piece, you will notice, must be cut from ¼in. thick fretwood, with the grain running in the direction shown by the arrow. The feet disc can, if desired, be cut from the same material, but you will have to glasspaper the thickness down a trifle to give freedom.

The best plan is to cut the feet disc from 3/16in. thick wood, as suggested, and preferably plywood, if you have a small piece that could be used. As for the cover piece, you need to cut a right and left shape from ⅛in. wood.

So far as the hand stick is concerned, you could use an 18in. length of ⅜in. or ½in. dowelling, cutting a ⅛in. slot in its end to fit the slot cut in the centre piece. However, failing dowel rod, a proper stick is cut to the size and shape shown on the pattern page, using ¼in. wood.

Gluing Together

Before gluing the parts together, the feet disc requires to be finished off. In other words, you need to draw boots on the leg shapes, doing so on both sides. To make right and left boots, you will see that each alternate boot has three lacing buttons showing.

The best plan is to paint both sides of the feet disc with a white paint, allow to dry, then paint on the boots. Prior to finishing off, however, cut out a couple of thin cardboard washers, and glue them to the centre of the disc, one at each side. These washers prevent any likelihood of rubbing and thus facilitates the movement.

Assembly

To assemble the parts, select the centre shape and glue one cover piece to it. Try the feet disc in its space and fix with a small screw. If it—the disc—revolves neatly, as it should do, fix on the opposite side piece.

When the glue dries, paint the work with a foundation coat of white paint. Allow to dry, then paint in the detail and features with coloured paints.

The novel "Walking Witch" going along

A thin enamel paint should be used, applying it with a small pencil brush.

The hand stick is best smoothly glasspapered and given a single coat of clear varnish. When all has thoroughly dried glue the hand stick to the work, then pivot the feet disc in its cavity, using a single roundhead brass screw ½in. long.

The disc must move around its pivot screw. As the screw threads are apt to enlarge the hole in the disc, a ½in. wire nail is probably the best thing to use.

In use, of course, the stick is held in one hand, the "feet" set on the ground or table, as shown above and the figure pushed forward. The disc begins to revolve and the "feet" walk

Hints on how the handyman can be sure of

GOOD MITRE JOINST

ONE of the easiest joints in woodwork, and yet one which needs considerable care, is the plain mitre joint such as you see in photograph frames. One or two hints on cutting and use may, therefore, be acceptable. The joint is not often used in ordinary fretwork subjects, because it necessarily takes the thickness of the wood to hold the two edges together.

For this reason, it is best practised in wood from ½in. thick upwards. It is necessary, too, to get a good strong joint with glue, because it is two end pieces of grain which are joining together. If you are not sure of all the strength needed, it is always best therefore to back the angle up behind with some additional material.

Angle Brackets

In picture frames, for instance, where the moulding may be small and narrow, you can get brass angle plates and screw them on to cover the corner satisfactorily to hold the pieces together and to stiffen up the whole thing.

Occasionally, too, the framework of this kind can often have a complete backboard nailed on which serves the same purpose. The great essential of mitre cutting is naturally to ensure that an angle of 45 degrees is obtained in each cut.

Even a little difference in this angle will throw the whole thing out, and make it very awkward to correct. One bad mitre in a picture frame, for instance, will weaken the whole thing.

Where possible, the marking out should be done with a bevel gauge such as that illustrated. This can be set the exact angle of 45 degrees, and a pencil line marked on to the board to be cut. A small tenon saw is usually satisfactory for this job, but remember to leave sufficient length of wood.

Care in Sawcuts

If you have a very wide-toothed saw and cut along the marked line, then obviously some of the wood will be taken away each side. This will reduce very slightly the length of the wood and may throw out your construction if it is to be definitely accurate. Your sawcuts should therefore be made just one side of the pencil line so that the teeth in cutting do not go inside.

Remember, too, if you have a thick piece of wood, to mark with a square on the face edge of the wood also. Then you can watch out in the operation of cutting to see the saw is going through it vertically and not sliding off at an angle.

There are also, of course—or there were in peace time—special mitre cutting tools in wood and metal. A simple one is illustrated here, and as can be seen the saw is actually guided down at a pre-cut angle so you cannot go wrong. These angle blocks usually have a left and righthand direction, so you can cut both angles to form a complete mitre.

In use, the main point is to hold the wood firmly down into the corner and to use the saw gently across the work to ensure a clean, accurate cut.

Some readers will probably be fortunate enough still to possess a metal cutting cramp which was made by Hobbies Ltd. before the war. This was a very much improved style because the wood was held on the flat bed in the cramp by a screwing-up device, and the sawblade ran between two long metal guides which ensured accuracy.

Those, however, who do not now possess either of these two useful tools can still undertake the work with careful marking out. It is essential that this original marking be correct in the first instance, or the rest of the work will be useless.

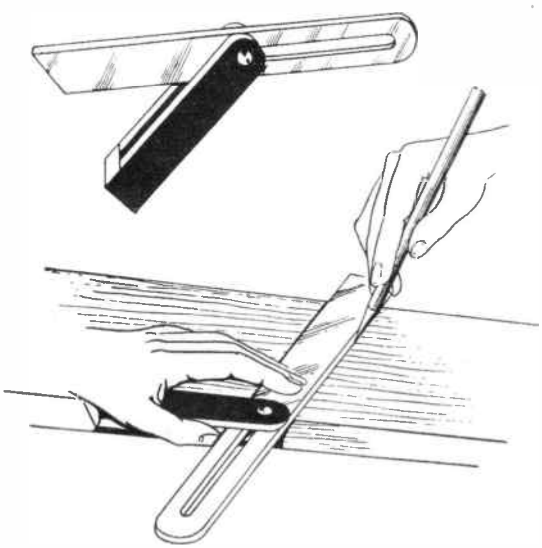
Professional carpenters also improve their mitres by planing them on a special shooting board. This, however, is not a simple job for the amateur, unless one has ability, a sharp plane, and a knowledge of how to use it.

Corner Stiffeners

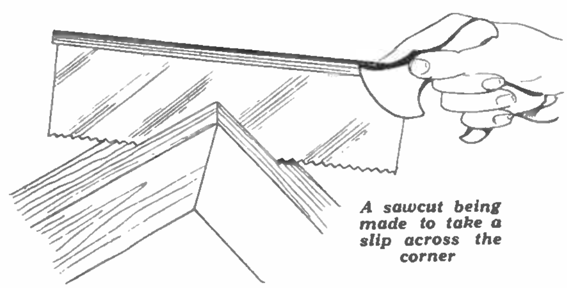
Remember always that a mitre joint in itself is not particularly strong, therefore if possible provide it with additional strength if you can.

A simple way of doing this is by putting in a narrow slip of wood (known as a key) across the complete corner, as shown in the illustration. A fairly wide sawcut can be made across the two joined pieces—after the glue has set of course—and then a thin slip of wood glued into this sawcut.

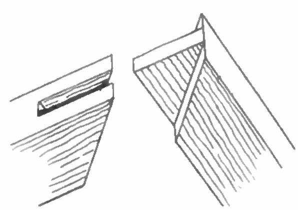
It is shown in the illustration projecting as first put in. The projecting portions can afterwards be sawn and planed off to bring the surface level with the main work.



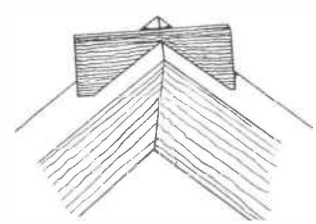
The bevel square and how it is used



A sawcut being made to take a slip across the corner



A tongued mitre joint



The slip in place before being trimmed level

Another method is to drive a screw right through across the angle of the two joints, but this can only be done if the wood is fairly thick and wide enough to take the head well countersunk into it.

A better and stronger joint is the shouldered mitre which is also illustrated here. As you see, a piece of the original wood is left projecting, and this has to be sunk like a half mortise and tenon into the other portion of the mitre. Marking out must be done very accurately again to provide a true angle in the finished joint.

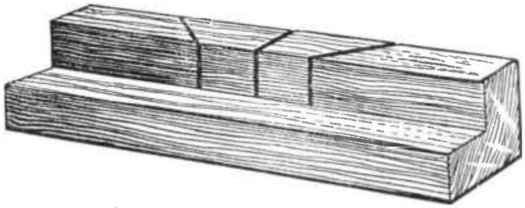
In this case you can see there is a greater surface for gluing, and you also have a cross grain to provide greater strength. Chisel or mortise away very carefully, and remember in cutting it out in the first instance to keep the saw on the inside of the marking lines. If not you will have a gap too wide to hold the tenon firmly.

If only a glued plain mitre has been cut, some difficulty may be found in holding it together until the glue has set. If possible, nail corner stops of old blocks on to your bench a little larger than the frame of the mitre. Lay the finished work on it, and then wedge up tight at each corner.

Another method is to get a piece of string run round the four corners of the mitred joint and pull this quite taut until the glue has become hard. Strong string should be used, and if you think it likely to mark the corners of the wood, these parts should be padded up with thick paper or a piece of bent card.

In using this string, it is best to get a loop large enough ready first, and have a running noose at one end which will tighten itself up as the string is pulled tight. Lay the frame on the table, and immediately it is glued, put the string round.

Then with a gentle pressure, tighten the whole thing, taking care that no part of the frame slips. It may be inclined to twist and should be kept flat on the bench. Or it may be inclined to slip and to throw the whole thing out of true.



A simple type of mitre cutting tool

How to hold and cut the work

How to get accuracy of finish in your

MODEL PLANE WHEELS

FROM time to time in these pages, we have published designs of non-flying model aeroplanes, and a very large number of readers have enjoyed making them up. One of the points noticed in the various specimens we have seen, is in the construction of the landing wheels.

Most of the models are, of course, built as if grounded, with their wheels down. This seems to be a point which many of the model-makers overlook for detail. We must remember that the more time spent in the actual finishing detail of this kind, the more accurate will the whole model be, and if a thing is worth doing at all, it is certainly worth doing well.

Do not, therefore, spoil an otherwise excellent piece of work by merely having two circular discs on a piece of wire to represent the wheels.

It is, of course, impossible to standardise their making because they vary almost from type to type. For instance, fighter machines have a thinner wheel than a bomber. When standing, too, the great weight of a bomber flattens out the underside of the pneumatic tyres more than the lighter weight of the fighter.

The oleo legs also vary with the different planes, and if you are wanting to get these correct, the only way is to obtain pictures and closeups of that part and finish them off accordingly.

How to Construct

The usual trouble with the wheels is that they are too thin and merely flat discs with imitation tyres painted on. This is probably because it is a little difficult to recess the centre of the wheel which is usually below the outer surface of the rim itself.

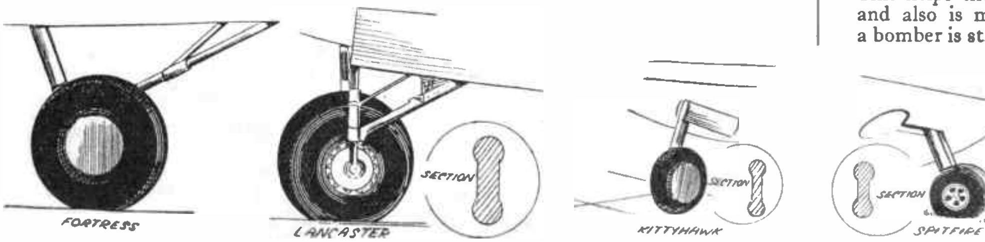
One can, however, build up the wheel in three parts as is shown in the diagram. A central circular disc is cut, and then two other rims are semi-rounded and glued on. The wider the tyre, the smaller the hub usually, and this effect must be borne in mind when making the part.

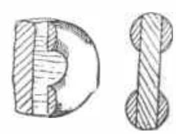
A drawing of various types of wheel is also given here, with the names of the plane to which they belong. If you want others you should notice the photographs of them, and cut out accordingly. The centre hub is usually metal, but the tyre portion, of course, must be painted to represent the dark rubber.

Suitable Finish

A very dark grey—white with black—should be used for this, and if you want further detail, treads and sizes and names can be marked on. The whole should be entirely completed, finished with glasspaper and painted before being added to the legs.

Do not forget, too, by the way, that if you are putting it on a bomber, finally to flatten off the under edge. This helps the model to stand firmly, and also is more accurate for when a bomber is standing on the ground.

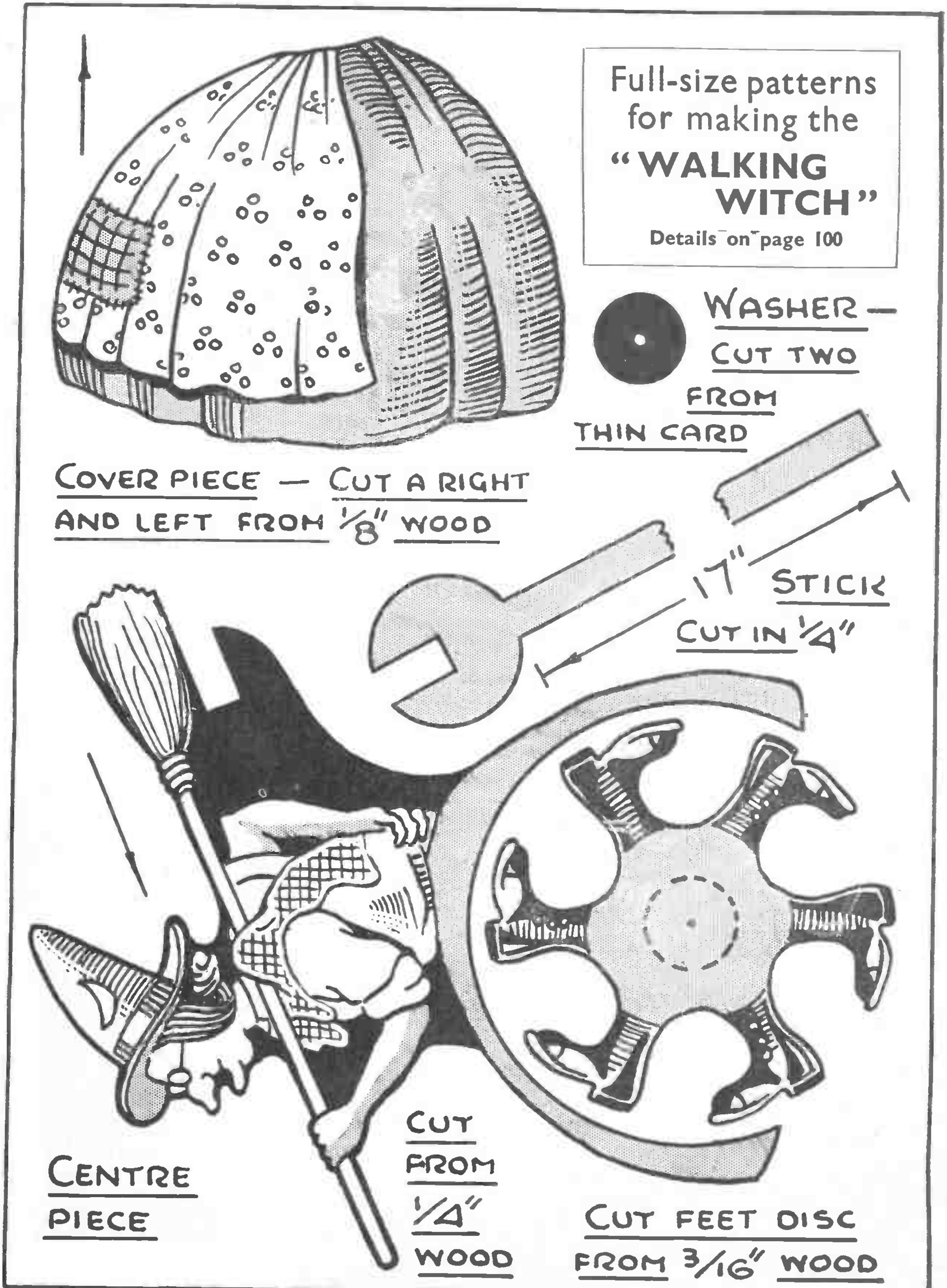


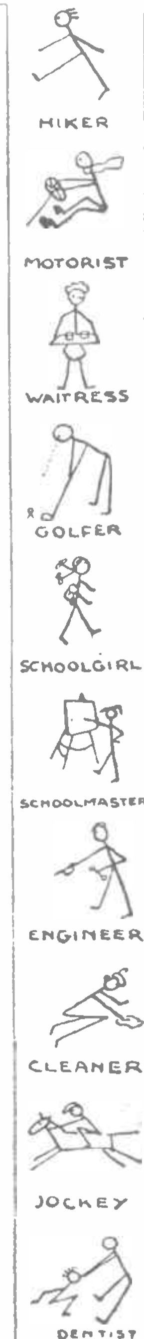


Section showing construction

Full-size patterns for making the "WALKING WITCH"

Details on page 100





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