FIRST NUMBER, WITH INCREASED PAGES, OF NEW VOLUME

Hobbies WEEKLY

CONTENTS

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A CHILD'S LOW RUNABOUT CHAIR

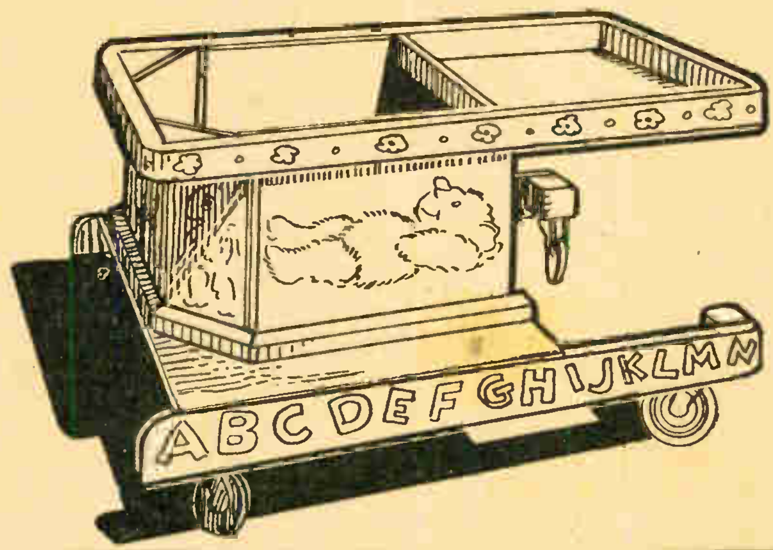
A RUNABOUT chair of the type illustrated makes a most welcome and useful addition to the nursery. The child may be wheeled about or can propel itself by its own legs. It can serve as a play or meal table. Later, the child will delight in pushing it around like a truck, giving dolls and teddybears, etc., a ride.

It can be made of odd pieces of wood, as it is afterwards brightly enamelled and all wood hidden. The dimensions given are largely in the way of suggestions. The height of the seat from the ground, however, should not exceed 6ins., as baby's legs are short, and in any case, extra height can always be gained by using cushions. The height of the tray from the ground is 1ft. 2ins.

By using curved rails at the back, and by bending thin plywood, a bucket shaped seat could be made, but this comparatively difficult construction is not at all necessary since a cushion will always be used.

Plywood Necessary

It must be admitted that, at the time of writing, sheets of new ⅜in. plywood as required for the seat are comparatively expensive, but the handyman usually has scrap pieces of wood prudently set aside. The present writer, for example, made use of the carcase of an old radio set. An old trousers press would furnish similar wood. As a second choice, solid wood could, of course, be used.



The first thing to make is the top (Fig. 1). This is a framework of, say, 1in. by ¾in. stuff. Do not have it unduly slender as the tray part is cantilevered out and may, one day, have a strain at the far end. The two short rails (A) may be simply jointed to the long rails (B), as shown. The middle rail (C) is merely fixed with a nail at each end. The triangular corner blocks, 2½ins. each way, are glued and screwed in place (D).

The plywood tray (E) top is fixed to the underside of the frame. Take care that the frame does not "wind", i.e., see that it is not only square but *flat*. When the glue has set, the corners can be rounded off with chisel and glass-paper

The Floor Portion

The base (Fig. 2) is a sled-like construction simply formed by screwing the seat (F) over the two rails (G). It is not a bad idea to leave the sides slightly "proud", i.e., projecting a trifle, and then planing off flush when fixed. The back ends of (G) are well rounded over. The fore ends are left square for the moment.

Blocks (H) to take the rubber-tyred castors (tea-trolley wheels) are then fitted. These will be approximately 3ins. long and of 1½ins. square section. Do not skimp the timber here. One pair is glued and screwed to the front of the rails, facing inwards, and the other

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pair is fitted just inside the under part of the seat, at the rear. This, incidentally makes for a stronger joint here. For the same reason of strengthening, glue-blocks (J) are fitted.

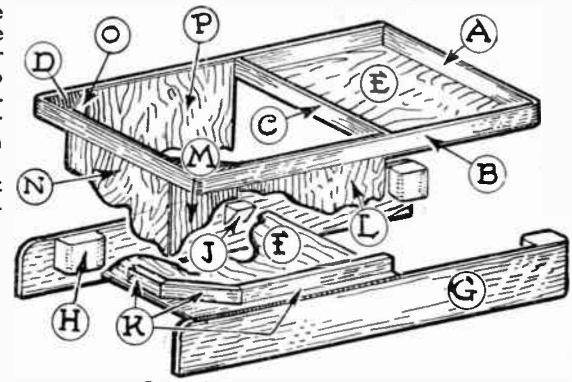
By placing the frame top centrally over the seat base, the position of rails (K) can be ascertained and their true lengths found. They are screwed to the seat base from below, and can be of 1in. square section wood. The outer corner might well be bevelled. The strips are neatly mitred at the joints. The back rail comes flush with the end of the seat, but at the sides there is a 1in. wide ledge.

The easiest way to decorate the job would be to use the cut-out figures of nursery-rhyme or similar characters which are sold in most decorators' stores in bright colours. These are fixed with thin glue, taking great care to see that none oozes out. When quite dry, a coat of clear varnish is given, to make the job waterproof so that the chair can be washed down from time to time.

A better way might be to paint the decorations on. These may be of the very simplest, and can be copied from children's toy books. Even if the reader is a skilled artist, it is quite unnecessary to make elaborate decorations. To give two, of several reasons: the child itself appreciates the bright colours but not the detail, and in any case, the chair is bound to get slightly scratched in use.

Thus, in the illustration, the letters of the alphabet were not given the care that a professional signwriter would apply to them, but were painted in the way that an older child might do them.

Other suggestions and ideas may occur to readers. For example, a row of large beads (or even cotton reels) on a wire might be fitted inside the front rail of the tray. But do not go in for anything too elaborate.



General cut-away view of parts required

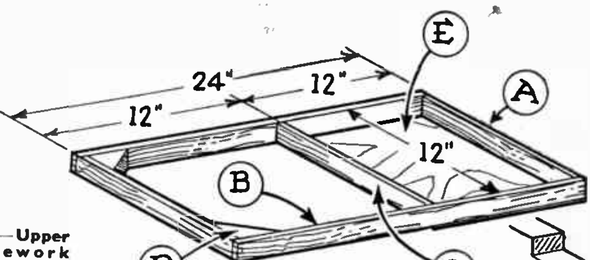


Fig. 1—Upper framework and tray portion

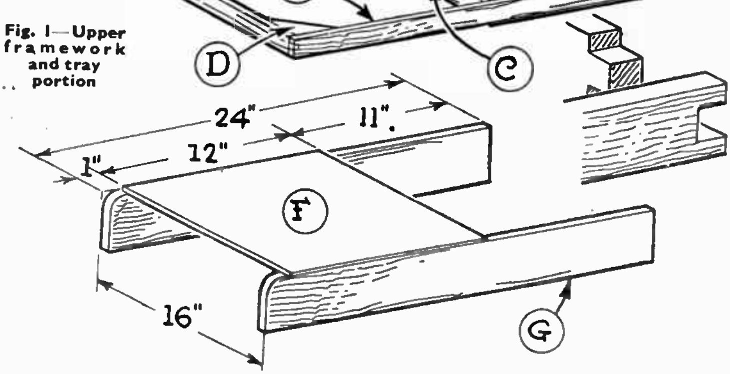


Fig. 2—The main base and wheel runner sides

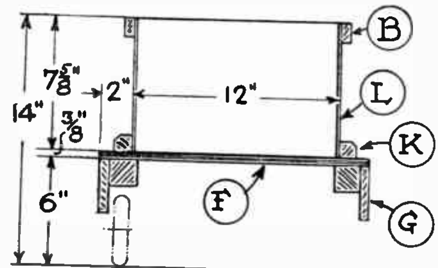


Fig. 3—Sectional view and one wheel dotted

The main sides (L), (M), (N), (O), (P), are of 3/16in. plywood, $7\frac{5}{8}$ins. high and are nailed to the inside of the top frame and the inside of the rails (K). A slight gap can be left at the joins.

The whole job is cleaned up and all sharp corners and edges well rounded off. A coat of woodfiller is advised and at least two coats of enamel paint should be given. Most probably light pastel shades will be favoured.

The wheels, by the way, are the usual tea-trolley wheels, but do not have these too small. The writer found, by experience, that if the wheels are too small the chair will not swivel round easily, at a mere touch, in all directions. By using larger tea-trolley wheels, the fault was immediately overcome. The wheels are fitted by drilling a hole in blocks (H) to take the shank of the wheel support in a tight fit.

Peep-show—(*Continued from page* 3)

does light. Get this working satisfactorily before proceeding further.

Now cut the back of the box the full outside dimensions. With a fretsaw, cut this across $1\frac{1}{4}$ins. from the top, and hinge the two parts together. In the upper piece bore a $\frac{3}{8}$in. hole (shown by a dotted circle in front view, Fig. 1) for the rod of the slider, D, to enter, and screw this upper part to the box. The lower hinged portion forms a cover to the battery and money compartments, and should be furnished with a catch, or preferably a lock. Now for a final test.

Press the slide in, the light should not go up—press a 3d. piece in the coin holder, see F, Fig. 3, when the light should go up, and will, if adjustments are correct. On letting the push go, the slide will be drawn back, if a spring or elastic band is hooked over a screw head in the end grooves, and fastened to screw-eyes in the back, then the coin will drop into the compartment below.

A cover over this switching arrangement can now be made from thin sheet metal, to dimensions given at I, Fig. 4, plus $\frac{1}{8}$in. all round for bending over the sides of the box. Where shown, cut a slot for the coin, and small holes for fixing screws at each corner. Fix the cover on and make sure the slot is in the right position for the coin to enter the box and slip between the coin holder and spring H.

All that is required to finish the job is a reflector. Cut this from a piece of bright tin to the size at J, and at the spot shown cut a $\frac{1}{2}$in. diameter hole, or one large enough to go over the lamp bulb. It will be seen that this hole is on one side, this will allow for the longer portion, which should be on the left side of the lamp, being bent to a quarter circle, thus reflecting the light towards the centre of the model.

Cut a hole in the model case, large enough to receive the lamp and reflector, and any other projection on the front of the box. The latter can then be screwed in place, suitable holes for the screws being indicated by the three small circles shown in front view, Fig. 1. Readers purchasing the fretwood for the box will need one panel of $\frac{1}{4}$in. wood 7ins. by 14ins.

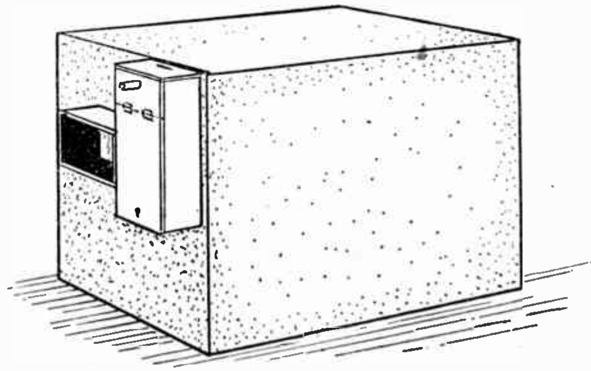
Battery electric light is provided in this complete

3d. PEEP-SHOW

NO doubt many readers of Hobbies Weekly exhibit their models and for such, the arrangement illustrated may have some interest. It is a self-contained unit, including an electric light and battery, also a switch mechanism operated by placing a 3d. piece in the slot. Fitted to a suitable box, containing the model, it can be left to play its own part in helping whatever fund the exhibit is intended to benefit.

As this article is only to help the construction of the illuminating unit, the box for the model is not in consideration, but a hint or two may not be out of place. It can be made of wood, or more economically of cardboard, or plywood, on a wood framework.

The peep hole should be about 4ins. wide and $2\frac{1}{2}$ins. deep, and be surrounded by a light wooden frame, extending beyond the box some $2\frac{1}{4}$ins. to bring it level with the unit, which is fitted against it, as in the general view.



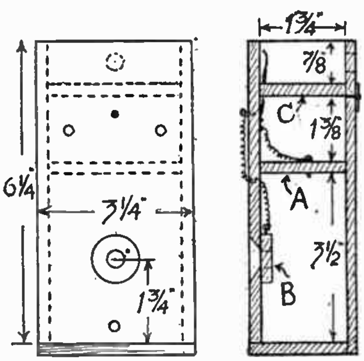


Fig. 1—Front plan and side section

This frame should be lead-blacked on its inside surface, and the interior of the box should be papered a dark colour, so that little or nothing of the model can be seen until the light is on. Those readers who may ask themselves why 3d. is the fee for lighting, instead of the more usual 1d., must reflect that it takes a lot of pennies to make a substantial addition to the funds, and after all, 3d. is not too much to pay to see a really good model.

The Main Box

At Fig. 1, a front view and side section of the box for the unit is given. It should be made up from $\frac{1}{4}$in. fretwood. Cut the front to size, and at the central spot shown, bore a $\frac{3}{8}$in. hole through for the lamp bulb, a 2·5 volt one, as used in an electric torch. This hole is bevelled out to nearly 1in. diameter.

Cut the two side pieces of the box and nail and glue to the front: follow this with the bottom piece, then the middle shelf, A. The bottom compartment thus formed is to hold the battery, one of the common cycle-lamp type.

In shelf, A, at the right distance in from the back, drive in a small brass screw far enough to contact the battery below. Test this with the battery in position, after piece, B, has been attached. This is a strip of wood, 1in. wide and $\frac{1}{4}$in. thick, and long enough to stretch across the box. In the centre of it a $\frac{3}{8}$in. lamp hole is bored, and when B is fitted across it should be where shown, exactly in line with the lamp hole in the front of the box.

In the top edge of B, and in line with the lamp hole, drive in a small screw far enough to contact the threaded case of the lamp when the latter is in position. Part B, can now be screwed across. The top shelf (C, in Fig. 2), should be cut to size, and its slat and square opening sawn out. Nail and glue it in place.

Money Compartment

The compartment below it is the money box, the 3d. pieces falling into it through the opening in C, above. The top compartment also contains the switching arrangement, now to be dealt with.

The sliding part, D, is a piece of wood, cut to size given, with a length of $\frac{3}{8}$in. wood rod glued exactly in its centre, and extending or sticking out $1\frac{1}{4}$ins. In each end a $\frac{1}{4}$in. square groove is sawn and chiselled out. At the front, at the part shown, glue $\frac{1}{4}$in. square strips of the fretwood, to act as stops to prevent the slide actually touching the front of the box, when pushed in. This slide carries the 3d. piece, and to facilitate this, a holder of tin, as at E, Fig. 3, is bent up and nailed to the centre of the front. Use small nails, and see they do not project from the tin enough to catch against, and hamper the coin entering.

Try the slide and glasspaper, it is necessary to make it a free easy movement in the top compartment, also see that the coin holder does not grip the edges of the 3d. piece, but just keeps it in place.

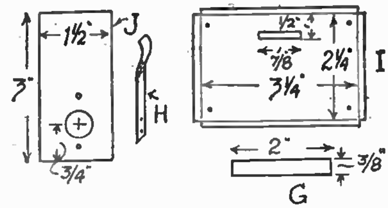


Fig. 4—Switch spring and cover

Spring Contact

A spring contact must now be made, cut from a strip of thin springy brass to length given at G, in Fig. 4, and bent to the shape at H. Punch two small holes in this at the bottom and fix it to the front of the box (in the money compartment) with its curved top coming to within $\frac{1}{4}$in. of the top of the box. This will be seen and understood very clearly by reference to the side section in Fig. 1. It should be bent forward enough to press lightly against the tin

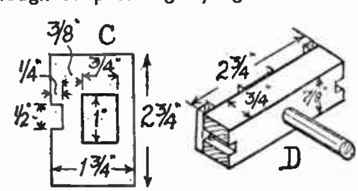


Fig. 2—The top shelf and slide

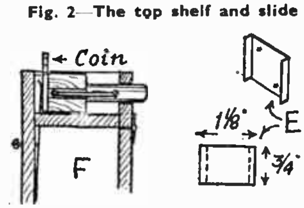


Fig. 3—The coin slot and slider

coin holder on the slide, when the latter is pushed in.

A little below shelf C, drive in, from the front of the box, a small brass screw, which should nearly, but not quite, contact the spring H. Now connect the brass screw, in shelf A, with the spring contact, and the screw, which contacts the lamp, with the second screw, nearly touching the spring H.

Put a lamp bulb in position, and also the battery, then, on pressing lightly the spring H, the lamp should light up. If it does not, adjust the contacts until it

(Continued foot of page 2)

With simple lino-cut apparatus you can make

A STENCILLED TIE

THIS ingenious method of making and decorating a tie is simple and straightforward and will, undoubtedly, appeal to many readers. The design of the tie is, of course, entirely to taste, but we deal with a simple, two-colour, repeating design 2in. square, as shown in the illustration. You can either print your pattern in a regular fashion side by side, or use the half-drop variety. You can also make a design which links one square with the next, and so have a continuous pattern throughout.

Materials

For making you require only two pieces of lino 2in. square; two blocks of wood approx. ½in. thick, and 2in. square; two tubes of fabric-printing ink (different colours) and a set of lino cutters. Apart from the cloth on which you print the tie your material should cost about

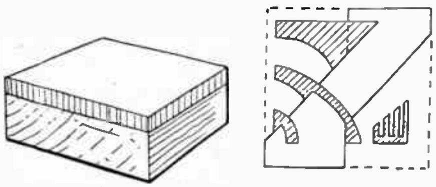


Fig. 1—The block and design

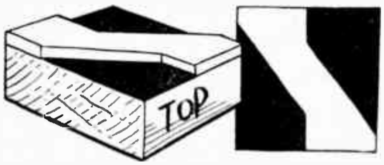


Fig. 2—One colour piece

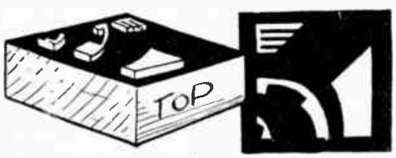
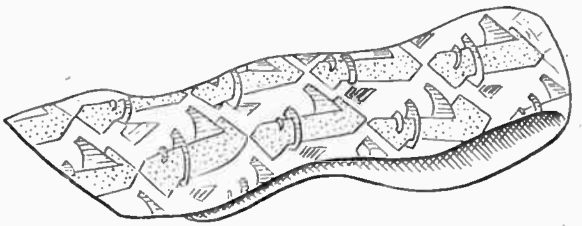


Fig. 3—The second colour parts

five shillings, but once you have these you can make several dozen ties.

One yard of cloth is sufficient for three ties; the materials given are to make a two-colour design. If you wish to use more colours you will merely need more blocks and more ink.

When you have cut out your 2in. squares of lino and wood, the lino should be glued on to the wood as shown in Fig. 1. If you so desire, the lino can be bought already mounted, but it is much dearer this way.



Having decided on your design you must trace it on to your lino blocks and fill the patterns in with black indian ink. This latter process is not indispensable, but it makes the pattern stand out much more clearly and, therefore, the cutting is much easier, especially in a complicated pattern.

The different colours in your design must be traced on to separate blocks. For example, if your design is in blue and brown, the part of it which is to be printed in brown should be traced on to one block, and the part to be printed in blue traced on to the other block.

After you have traced the pattern for one colour on to the block and inked it in, all the rest of the lino should be cut away with a sharp edge down to the canvas backing. If any of this canvas frays it should be trimmed, or it may otherwise appear on your print. When you have thus cut both your blocks they should be scrubbed with soap and water to remove the ink from the surface of the lino. The top end of each block should be marked, as in Figs. 2 and 3.

Instructions for the use of lino-cutting tools will be usually supplied when you buy them, therefore, they have been omitted from such instructions here.

The ink should be placed on a sheet of plain glass, and well rolled with a gelatine or rubber roller, as shown in Fig. 4. Care should be taken to ensure that only a thin coating of ink covers the roller.

Now roll the surface of your first block for a trial print. This can either be made on a piece of paper or on a piece of scrap cloth. Any defects in the pattern will now become apparent and should be rectified. For the sake of convenience both trial prints can be carried out in the same colour ink.

The second block should be treated in like manner; then both can be printed together to form the whole pattern. If you are satisfied, you can proceed with the printing of your cloth. This should be printed over the whole surface and no spaces left at the edges where there may be room for only half a print. First print over the whole of the cloth with one block and then do likewise with the second block.

All printing should be done on a pad of paper or old magazines, etc., and not on a hard surface. The block should be held firmly face down on the cloth and the back hammered three or four times with a mallet or hammer handle (see Fig. 5). The block should be inked after each impression.

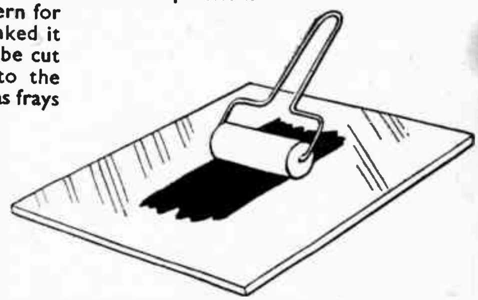


Fig. 4—Rolling the ink

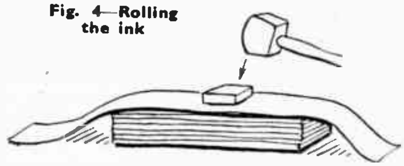


Fig. 5—Printing the block

When the whole of the cloth has been printed and has dried, you are now ready to cut out your tie. This should be cut out in three parts, as shown in Fig. 6. The actual size depends on your own taste. The arrow indicates the grain of the cloth. A narrow piece of material should also be cut to form the lining. The three pieces (A), (B) and (C) should next be stitched together along the dotted lines and Fig. 7 is then formed.

The tie should now be folded along the dotted lines shown in Fig. 7 and the sides brought together and stitched down the centre of the back of the tie. The lining should also be stitched down the centre in this same process.

About 2in. should be left unstitched at each end of the tie, and this should be hemmed. After pressing, the tie is complete.

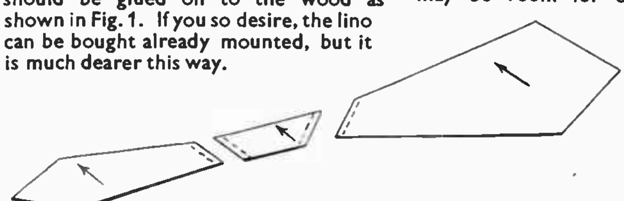


Fig. 6—The material cut in three parts

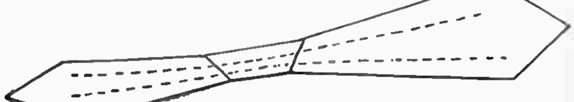
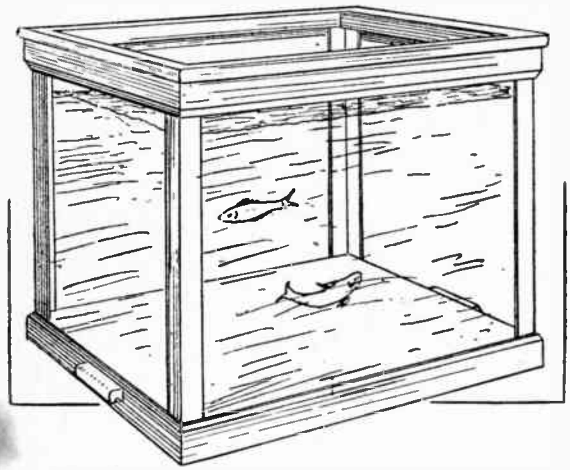


Fig. 7—Material folded and stitched

You can get great fun by building and stocking this

SMALL AQUARIUM



KEEPING and breeding fancy fish is a pleasing hobby, and can easily be enjoyed if a suitable aquarium is available. Quite a good one can be made at home, and need not prove at all expensive. In fact, apart from the glass, only a small quantity of wood and a piece of zinc or other metal, are required.

Make up a base from stout wood, to the dimensions given in Fig. 1. As two boards, at least, will probably be needed to make the width, use tongued and grooved wood if at all possible, but if not, glue the boards edge to edge, and cramp up until the glue is hard.

Strengthening Batten

At each end, underneath, screw a batten across, as shown in the diagram. Be generous with the screws here, and countersink the holes. When finished, trim the edges of the base square and level with a smoothing plane.

Now make a frame of ½in. square wood to the same dimensions as the base, the corner joints being halved, glued and nailed, just one nail at each corner only. For the upright corner posts, four lengths of angle metal, ¾in. each way, will be needed. These are cut to 11in. long.

Suitable Metal

Any angle metal available can be utilized—steel or aluminium—or they can be bent up from stout sheet zinc if preferred. This bending-up job is not a difficult undertaking. Just scratch a line down the centre of the strips of zinc, which should be 1½in. wide, and bend along the line to right angles. If the metal is laid on a board, with ¾in. of it extending beyond the edge, it can be easily bent over with the fingers, and then lightly hammered to a true right angle. There is a slight tendency, when bending, to force the zinc backwards a trifle; this can be checked if a few brads are driven in the wood, at ¾in. from the edge, to prevent this.

The corner edges of both the base and frame are not cut away enough to let the angle metal parts in level, as at Fig. 2 (A.) Now fix the posts with small brass screws, well countersunk.

It will be as well to file the heads of these also if any extend slightly beyond the metal, also to see that the metal and wood edges of both base and frame are truly level, so that the moulded strips now to be fitted bed flat against them.

The strips for the bottom edges are cut from ⅜in. thick wood, wide enough to cover the base and battens and come 4¾in. above the base. The top edges of these are bevelled. Strips for the top are 1¼in. wide. These are now nailed round, the corners being neatly mitred.

Cover the top with a ⅜in. by 1⅛in. strip, mitred round, and extending just ¼in. over the edges. The outer edges of these are nicely rounded off. Reference to the sectional details (B) in Fig. 3, will make the above details clear.

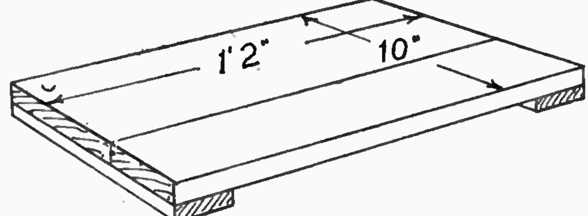


Fig. 1—The stout wooden base and end battens

Now glasspaper the woodwork. Give the whole, inside and out, a coat of paint. Should there be any difficulty in making the paint take on the zinc, rub it lightly over with coarse emery cloth. When this is dry the glass sides and bottom can be fixed in position, a job requiring a quantity of suitable cement, recipes for which are given at the end of this article.

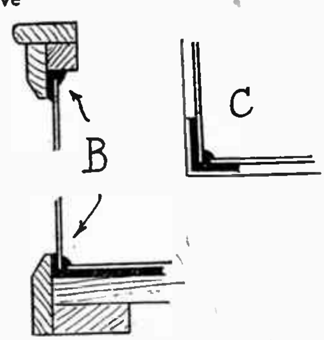


Fig. 3—Section showing joints

Glass for Bottom

Cut the glass for the bottom of the aquarium ⅛in. less in length and width than the inside dimensions. Some economy can be effected with the cement by bedding the bottom glass in ordinary putty, not too soft. Spread a layer of this over the bottom, lay the glass on and press well down until the putty squeezes up at the edges. Remove this surplus, leaving it level with the glass.

Side Glasses

The side glasses are next fixed. These are cut ½in. less in length than the inside dimensions, and wide enough to come within ⅛in. of the glass at bottom, and the top frame. Now use the special cement. Lay it on generously where the glass is to come, press the glass well in position and remove the surplus.

The side glasses are then cut and similarly fixed. It is important now to add further cement to form a fillet in each angle all round, so that the glasses are properly embedded in it. This will be better understood by reference to the vertical sectional details (B) and the transverse section of one corner at (C).

Press the cement well in, and examine it to make sure that no gap shows, however small. If care is taken over this part of the work, a leak is unlikely. Leave the job for about a week, then partly fill the aquarium with water.

If a leak does appear, mark its position, empty the aquarium, and when it is dry press some more of the cement in the gap to seal it. When satisfactory, give all the outside and the inside edges of the top framing, not forgetting the underneath portions of the framing, a coat of

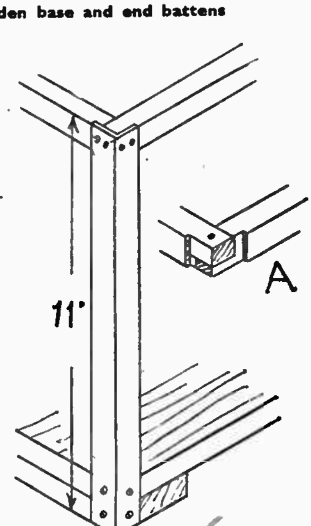


Fig. 2—Detail of Corners

(Continued on page 14)

Here is the correct way for any home handyman

FITTING A PLUG POINT

THOSE who are fortunate enough to occupy modern houses have the advantage of fitted power points and other modern conveniences. But there are, and will be for many years to come, the older type of houses where less fortunate people are forced to use the lamp-holder as a power point for heating an electric iron. A lamp-holder is not intended to take the current of an electric iron and in consequence it becomes defective or burns out.

The job of fitting a new one falls naturally on father and, when he grumbles, the wife says, 'Well why don't you do something about it?' Fitting a power point conjures up a nightmare of pulling up floorboards and finding connexions to the main service cables. For the novice this is no easy job.

Sanctions

There are certain rules and regulations that must be observed. Any new fitting should have the sanction of the electricity supply authority, but there are some jobs that can be done without much bother. Before starting any electric power work switch off at the main. Never, in any circumstances, work on a live circuit.

Do not skimp any wiring or take chances; do everything thoroughly and consciensciously. Bear in mind that electricity, like fire, is a good servant but a very dangerous master. Any handyman of average intelligence can follow a wiring diagram; and wiring, like any other craft, is only a matter of practice.

Materials Required

For the power point adaption here described there is no need to pull up floor boards. The current is tapped at the ceiling rose and the light switch is used to control both light and power plug. An intermediate switch is fitted to control the light when not required in the daytime.

First select a convenient position for the power plug where the wiring can be run without being too conspicuous. Measure the distance across the ceiling in a direct line square with the wall and allow sufficient length for bends and down the wall. With a few inches to spare, obtain a sufficient length of five-ampere lead-covered twin cable and metal clips to secure the cable at intervals of 8in. to 9in. Do not in any circumstances use silk or cotton flex for this work.

Flex

You will also require a five-ampere plug and socket and a wooden mounting block; a suspension switch and about two yards of silk covered flex, or a ceiling switch.

Take down the existing lamp-holder and ceiling rose and block. With a tee square, or by visual judgment, mark with a lead pencil the position of the cable run across the ceiling. This should be as nearly as possible at right-angles to the wall. Then fix in position the metal clips to hold the cable, at intervals of 8in. to 9in. apart.

Assistant Needed

It will be found necessary to use long, but very thin nails to go through the plaster into the laths. Running cable overhead is really a two-man job and an assistant will be required to take the weight while the clips are being made secure around the cable. At the ceiling rose leave a few inches for connecting up.

Strip back the metal sheathing as far as is necessary to make a connexion. This can be done by nicking the metal with a knife and giving it a sharp bend. Clean the ends of the two wires, and also clean the two service wires to the ceiling rose. Twist together the ends of the new wires and the ends of the service wires; red to red and black to black, respectively, as shown in Fig. 1.

If possible, twist a thin piece of wire round the outer sheathing of the cable and connect it to the conduit in which the service wires are run. This will act as an earthing wire. Cut a small groove in the back edge of the ceiling rose block to span the new cable and screw it back into its original position. Replace the ceiling rose which will now have the two new wires in the terminals (see Fig. 1).

Now fit the plug at the other end of the cable. If its position is on a wall, it will probably be necessary to use wall plugs to take the screws for securing the wood block to which it must be screwed. Mark and drill the block for the wires to pass through from the back. This is done, of course, before the block is screwed to the wall.

Earthing

Most power plugs and sockets have three terminals, two to carry the current and one earthing terminal. It is always advisable to make use of the earth terminal and not take chances. In the event of a short circuit it may not prevent a shock, but its effect will be minimised.

It will now be obvious that the original light switch will operate the plug point and, normally, the light must be on when the plug is in use. To overcome this difficulty a suspension switch is fitted in the lamp circuit to switch off the light when the plug is used during the day.

Measure off the length of twin flex sufficient to suspend the lamp fitting at its normal height; then cut one lead only at the ceiling rose, as shown in Fig. 1. Trim off and attach the two new ends to the terminals of the ceiling rose. Now fix a ceiling hook in a convenient position, not too far from the lamp, and from it suspend the twin flex to the new switch. Cut the flex at a height that can be reached easily, and connect the switch.

A slight difficulty will be experienced with the switch flex at the ceiling rose. It can be taken through the same hole as the light flex, or it can be carried past one of the screw recesses in the porcelain base of the ceiling rose, before the dome cover is replaced.

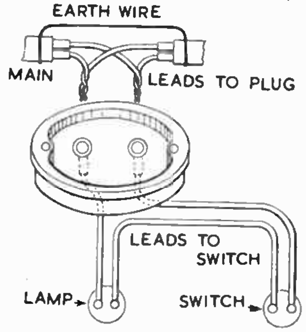


Fig. 1—An explanatory diagram

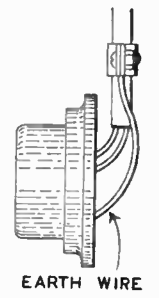


Fig. 2—Side view

If the latter method is adopted the dome cover will not screw right down, and care must be taken not to pinch the flex too tightly. If preferred, a ceiling switch can be fitted instead, this will require another wood block, but the wiring connexions are similar.

Safety

Domestic fittings of the type described should be earthed to satisfy the regulations of the Electricity Board, but the precaution should be observed chiefly for the sake of personal safety. At the plug point end a clip should be fitted to the metal casing of the cable and connected by a bare copper wire to the third terminal of the plug fitting, as in Fig. 2. At the ceiling rose end a similar clip is fitted and connected to the conduit of the service wiring above the ceiling, if that is possible.

In any case, a connexion to a water pipe can be made at either end. Many plugs are sold without earth terminals. It is never wise to make alterations to the wiring circuit in a slipshod manner. All connexions must be sound and fireproof. Never use ordinary cotton covered flex in close contact with wood or other inflammable material.

How the amateur handyman can provide himself with

A SPRAY GUN

THIS very useful article is invaluable for spraying varnish, paint, or indeed, any solution, the necessary air pressure being obtained from the reverse end of a vacuum cleaner, foot bellows, or container, pumped up to a good air pressure. The materials required are few and should cost little, while the work is quite within the scope of the average handyman with a limited collection of tools.

The paint container is a glass jar, provided with a metal screw cover. A Horlick's malted milk jar would serve nicely. The tube, leading into the jar, from which the paint will emerge in a spray, is a piece of $\frac{1}{4}$in. brass tubing. This is threaded for a length of, say, 2in. and is then provided with a couple of suitable brass nuts to fit. Those not, perhaps, possessing the necessary threading tools could get this little job done for them at most model shops, or perhaps, a gas fitters or engineers.

Jet Piece

A jet must be fitted to the top (threaded portion) of the tube. Those fortunate readers who own a lathe could turn one up from a piece of brass rod and sweat it in the tube. A $\frac{1}{16}$in. hole should be drilled through this for the spray. However, the majority of readers are not so lucky as to possess a metal-turning lathe, so for their benefit a more simple form of jet is shown at Fig. 1 (A) made as follows.

Clean up with emery cloth the top of the tube and a little way inside the bore.

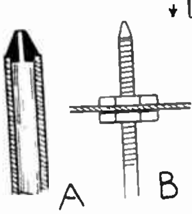


Fig. 1—The jet tube

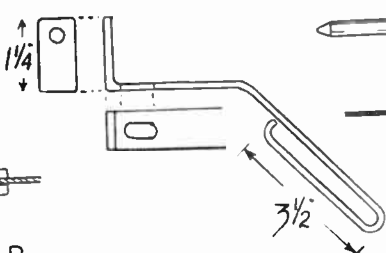


Fig. 2—Handle and support portion

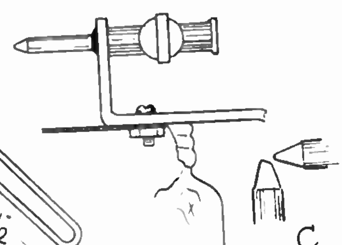


Fig. 3—Arrangement of jets

Then, with a hot soldering iron and plenty of solder, fill the hole up, and add more solder until a good lump appears, extending above the tube about $\frac{1}{8}$in. File this to a conical shape, and drill the $\frac{1}{16}$in. hole mentioned through the centre.

Take care no solder falls down the tube inside, if possible, but if some does, force it out with a long sharp instrument. A bit of trouble this, which is best avoided by doing the soldering with the tube horizontal on the bench, not erect.

The solder should not extend outside to the threaded portion, or difficulty may be experienced in getting the nuts on. Drill a $\frac{1}{4}$in. hole through the screw cover of the jar, not in the middle of it, but near one side. The tube can then be fixed in the cover with a nut, above and below, as at (B). It can be adjusted for height afterwards by means of these nuts easily enough.

The Air Tube

For the air tube a metal support will be required. This metal is a $\frac{1}{2}$in. wide strip of brass, about $\frac{1}{8}$in. thick or a shade less. Its exact length will depend on the size of the cover, but can easily be estimated from the outline shape, in Fig. 2.

Bend up $1\frac{1}{4}$in. at one end, and in this drill a $\frac{1}{4}$in. hole for the tube, $\frac{1}{4}$in. down. The remainder should be first left straight, for bolting to the covers, then the rest bent down and doubled underneath to make a handle.

In the straight portion, about $\frac{1}{8}$in. away from the bent-up piece for the tube, drill two $\frac{3}{16}$in. holes, $\frac{1}{4}$in. apart and file out between them to form the slot shown. The air tube is a short piece of the $\frac{1}{4}$in. brass tubing already mentioned. This should be either screwed in or sweated in, a small brass tap. Clean up, push the tube in the metal support, as in Fig. 3, and solder it also to this, with a neat fillet of solder.

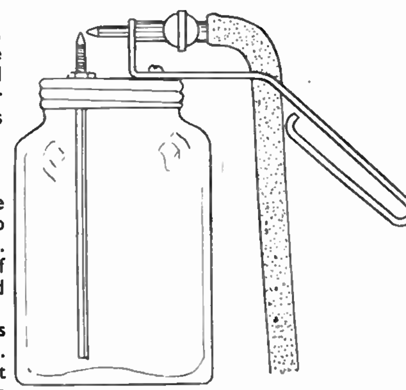
Depth Needed

Provide one $\frac{3}{16}$in. round-headed brass bolt, with nut complete. Drill a hole through the screw cover for the bolt, at approximately where shown in the diagram, and fix the metal support to it by means of the screw bolt. Fig. 3 shows this clearly enough. The actual length of the air tube can now be marked off. It should come within $\frac{1}{8}$in. of the paint tube. Now saw off the surplus.

An air jet is soldered in the tube, as done for the paint tube, then by means of the nuts and bolts, in both tube and metal support, adjust the tubes so that they nearly touch. A length of rubber tubing should be fitted to the tap, and lead to the source of the air pressure.

Trial

The jar is then nearly filled with the paint, which should be suitably thinned down, and free from lumps. Before replacing the screw cover, punch a small



hole in it to let air pass in as the liquid sprays out.

Test the spray gun, and adjust the distance between the air and paint jets, until a satisfactory spray is produced. It may be necessary, to take the utmost advantage of the air pressure, to file the paint jet a little sloping, as at (C) for the pressure to impugn upon it more decidedly. After use, the liquid container should be immediately emptied and the tubes, especially the jets, cleaned with turpentine or methylated spirit.

Have Two Jars

It will be found convenient, if two or more glass jars are provided to fit the screw cover, so that a rapid change to another colour paint can be made quickly.

In most cases, it will be found quite easy to open, or shut the spray, with the fingers of the left hand, while working. In the professional article, this control is actuated by means of a trigger or press stud, so placed as to be readily accessible to the thumb of the hand holding the gun.

To be able to work this with the same hand is, in some cases, undoubtedly convenient, and readers who may wish to enjoy the same facility, with the spray gun illustrated, can rivet or solder a metal strip to the tap, bending the strip to be easily reached with the thumb, while holding the gun, and so turning on the spray.

If a spring is added to pull the trigger back again, and so shut off the spray automatically, all the better. The works of the gun, being of brass, can be left unpainted or enamelled, but it will be wise to enamel the outside of the screw lid, or it may soon rust.

HERE is a hint for model makers. When painting or varnishing your models, to stop getting your fingers wet with paint or varnish, put one of the tops from a glue bottle over the handle.

Now is the time to remember and undertake

WINTER PRECAUTIONS

NOW is the time to have a good look round and put everything in order for the winter. Damp walls are a great danger and if not dealt with will lead to endless expense later on. It is wise, if you can manage it, not to have flower beds too near to walls. Overgrown plants will mean dampness accumulating on the wall and also prevent any defects in the damp course from being noticed.

Attention to the damp course is most essential, especially before winter sets in. Damp walls can be dealt with quite effectively by the home handyman for many special materials are now available under branded names to apply to such walls. A visit to one of your local paint stores will provide you with the right material and also probably a leaflet on the subject of its application.

Roof Space Pipes

Many water pipes in houses have the happy knack of running well along exposed parts of the loft or roof space above ceilings. If you can get at these first, odd pieces of sacking, old bits of rug and the special wrapping sold at Ironmongers will do for covering either all round or over. Pipes which run fairly straight can have light wooden three-sided ducts made to go over them. These can be filled with straw.

Very often the first freeze-up starts at the inlet valve to the cistern. A covering at this vital junction is useful. When frozen up, try using hot water on rags to ease it. Try and keep the room under the cistern warm. A small safety lamp in the loft or attic burning continually will prevent a freeze-up at any time. It will maintain just that little extra continuous heat all the time.

Likely Burst

If one hot water tap ceases to run, but the others are still in order, it is because only the branch on that tap is frozen. This means that only in that branch will you probably get a burst. It will very likely yield to the continued application of hot swabs. Should all taps fail, then immediately draw off the boiler fire, and open all the taps to relieve the pressure when the thaw takes place.

If the cistern or the cold water supply to it fails, then put out your boiler fire because it is certain that your supply to the boiler will fail. It is likely that the freeze-up is near the pipes that fill the cistern. Put an oil stove near the pipes. Only apply gentle heat, and do not use a blow-lamp unless you are experienced. During the very cold weather examine your tank twice daily—it is surprising how quickly it will freeze up, often due to a sudden change of the wind.

Another suggestion to keep the loft warm is to leave the trap-door open and stand one of the ordinary types of oil stoves below it. You can then watch the stove and keep it in order.

Also, keep your eyes open for a freeze-up in the 'U' bend of the sink pipe. This can cause quite a lot of trouble as it is very often quite a weak part of the pipe system and, as a rule, well worn.

Outside Points

Now to outside precautions again. Gutters, after the leaves have fallen are probably well filled at the corner junctions. Spend an hour or two cleaning these out. Also, check and see that all gutters have the necessary slope to allow the proper flow of water. An overflowing gutter is certain to cause damp walls and eventually damaged wallpaper inside.

Any water pipes which may still be found outside should have immediate attention. They should be thoroughly covered as these will lead to endless trouble otherwise. Should they come through an outhouse (which they often do where water was put on long after the house was built) they will definitely need boxing in and during bad periods of cold a lamp should be left burning.

Cover Plates

Before winter sets in you should acquaint yourself with the position of the water valve. This is mostly outside with a man-hole cover or a small square iron cover. By trying it you will find which way it turns. Check this up in good time. It is also well to know where the control tap is for the tank. As a rule this will be somewhere in the bathroom. It is mostly an ordinary brass tap but due to little use, very stiff to handle at first.

You may be going to use another room during the winter months. Perhaps this has been shut up some time. Check up the chimney first. At first you may find a downrush of air, which is probably caused by a cold flue and will right itself in a few days. If the smoking still continues, then you should call in the sweep. If, after this, you find it smokes, call in your builder; you may need some adjustment on the chimney. It may be caused by the chimney stack being too low and the adjoining buildings causing a down draught, whilst trees near a house or bungalow can also cause this trouble.

Leaf Guards

See that tops of pipes connected with drains have the standard wire frames fitted. Leaves and even nests will be found in these and can cause considerable unpleasantness.

Where glass verandahs are fitted to houses, these should be fitted with wire or wood batten guards against sliding snow. This is a job for the builder.

Condensation on walls is a common thing and there is little we can do about it. It mostly only happens on certain types of days. Keep windows open as much as possible and rooms warm. On such occasions it will be noted that doors and windows get affected in the same way. When drier and crisper weather returns these things will right themselves.

Chemistry Spirit Lamp

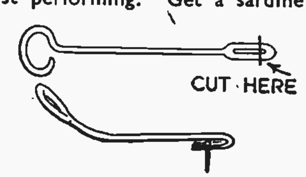
TO make a handy little spirit lamp for chemistry work, etc., procure a 4oz. wide mouthed bottle complete with cork. Bore a small hole through the centre and insert a short piece of glass tubing. Thread a piece of wool about 3ins. long through this. Fill up with methylated spirit and the lamp is ready for use.

Lead Ship Accessories

HERE is a tip which may be of use to model boat builders. I have found that when one wishes to make life-like accessories they are best made of lead. Small dinghies, lanterns, windlasses, etc., can be easily cut out of soft lead with an ordinary penknife, and they take the paint well. This is a good method for those who wish to build models made entirely by themselves.

Small Nail Holder

HERE is a useful gadget when driving small tacks in awkward places, and also to prevent hitting one's fingers whilst performing. Get a sardine tin opener and cut off the end as shown in illustration. Bend it over to enable a tack to be slipped between prongs as shown. Then bend the end to allow a better hold, but remove holder before driving tack all the way.



A short series about lathe work for those who undertake

WOODTURNING

THE craftsman with a lathe has a wider opportunity for turning and making things in wood, and any reader of these pages will find increased interest. This is the first of a short series in which we shall give complete yet simple instructions on the amateur's lathe, how to use it, and some things which can be turned out.

A picture of a Hobbies lathe in use

The pre-war popular Hobbies Lathes are again obtainable so the keen woodworker can now undertake many more pieces of usefulness as a result of these practical articles.

A treadle-driven lathe is convenient for the novice, since the speed is more under control than with a power-driven lathe, and the machine can be slowed or stopped more easily. But there are sharp limits to the size of a piece of work which can be dealt with in a treadle lathe (unless a heavy one of the old-fashioned type is used); and much more must be done in preparing the work beforehand, to avoid heavy roughing down in the lathe.

A happy compromise is to start with a treadle and to convert later to electric drive. Particulars of some suitable for amateur work are obtainable from Hobbies Ltd.

The main parts of a typical lathe are shown in Fig. 1. The pulley and belt drive a headstock spindle, which in turn drives the workpiece. On the screwed end of the spindle are fixed, as occasion demands, a screw-nose chuck (for small work of the nature of blocks or discs); or a prong chuck (to hold and drive a shaft or a tool-handle blank, and suchlike). These are shown in Fig. 2.

On the same screwed spindle end can be fixed the faceplate, which has holes bored for screws driven into a block or a disc to fix the wood to the right-hand or front side of the plate.

In the faceplate also are holes in which a driving peg can be screwed. This peg then engages with a carrier clamped to the piece of wood to be turned. A dodge often adopted is to form a driver by screwing in a wood screw to the left-hand end of the workpiece, in the "waste" which will be turned off later. Then the peg in the faceplate engages with this wood screw.

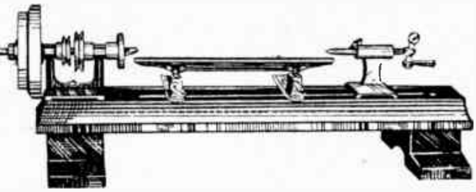
Extra Support

In using the screw-nose chuck, extra support can be obtained by also driving a wood screw through the faceplate into the wood block or disc. Drawbacks of both types of chuck mentioned are that they do not ensure an accurate re-chucking if the work has to be taken out during the job. This can be got over by making a prong chuck which has a central threaded hole to fit the spindle end, but which, of course, has no central prong.

If the spindle has a hollow end to take a taper centre (like those used in metal turning), this centre can be used in conjunction with the modified prong chuck. If the spindle end is solid, a pointed centre can be worked with a file or a metal turning tool upon it; the modified chuck can then be used. For this kind of chuck, a central depression is made in the end of the wood, which latter fits on the pointed steel centre and preserves alignment; the two prongs then merely drive the workpiece.

Getting to Work

Procure a piece of oak, beech or sound pine (mentioned in order of merit), which is or can be worked to about a 2in. square section throughout. The length should be such that it goes comfortably between the two centres—on headstock and tailstock respectively.



A typical type of woodworking bench lathe for motor drive

On a treadle lathe it will be as well to plane off the four arrises to obtain an approximate octagonal section all along; this reduces the labour of roughing down. First mark centres on both ends, by squaring lines across from corner to corner. The intersection of the lines marks the centre which is indented with a metalworker's centre punch, tapped in lightly with a hammer.

The Headstock End

For the headstock end, make a shallow saw-cut across on one of the pencilled lines, crossing the indented centre mark. This will help the prongs of the prong chuck to find their way, and will discourage slipping. At the tailstock end, deepen the indentation with a twist drill. The point angle of this is not far different from that of the tailstock centre on the tailstock ram or "poppet", as it is often named.

Screw the prong chuck in place on the spindle end. Set the tailstock so it has about $\frac{3}{4}$in. of the steel centre protruding when the horizontal distance from the prong chuck is about right. Clamp the tailstock body securely to the lathe bed. Undo the tailstock ram locking nut, and slack out the ram until the piece of wood can be inserted. See the prongs on the chuck engage in the saw-cut when the centre prong is located in the central indentation.

Fixing at Tailstock

Hold the tailstock end of the workpiece while the centre is screwed up by the hand wheel—not too tightly at present. Rotate the lathe by hand to test if the work runs centrally; the position of the prong chuck may need a little adjustment.

After this, turn the tailstock wheel to force the piece of wood firmly against the prongs at the headstock end. This done, slacken the wheel about half a turn; put a drop of oil on the tailstock

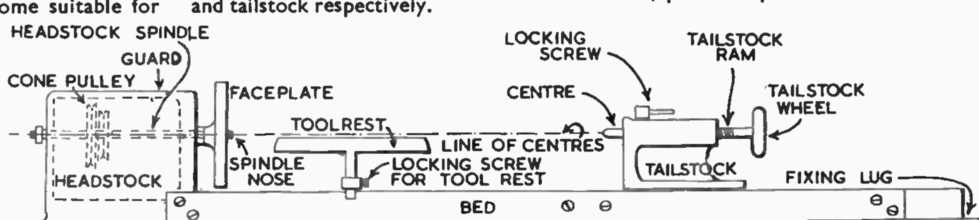


Fig. 1—An outline of a lathe head with main parts named clearly

centre where it enters the workpiece and lock the tailstock.

Oiling

Make sure the lathe headstock bearings are oiled, applying to the treadle bearings also if this type of drive is used. We shall begin roughing off at the tailstock end, so set the T-rest in place to project about ½in. beyond the right-hand end of the workpiece, with the face of the T-rest about a ¼in. from the angle of the wood.

For the actual cutting you need a turner's chisel and a turner's gouge, the ends of which are shaped, as shown in

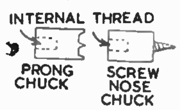


Fig. 2—Two chuck shapes

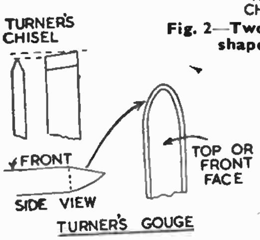


Fig. 3—Shape of cutting tools

Fig. 3. The turning chisel has a double bevel and the cutting edge is at an angle of about 6 degrees to shank, not square across.

The Turning Gouge

The turning gouge is thicker than a carpenter's gouge, and much longer in shank. The cutting end is ground away from the front or concave face to leave a spoon-shaped end. The tool is sharpened by grinding from the back or outside edge towards the front, like a carpenter's firmer gouge. The flat on the front face (the "spoon") is rubbed up on an oilstone.

A turning gouge should be bought already sharpened and set, ½in. or ¾in. broad. Lay it upon the top of the tool rest at a slight angle (see Fig. 4) when viewed from the top.

The height of the rest should be such that the tool bears upon the work at a little above the line of centres, so adjust the tool rest approximately to this setting. Grasp the end of the handle with the right hand, and hold the tool upon the T-rest with the left hand, bearing down upon the tool rest. Draw back the tool so its cutting part is away from the wood.

Smooth Treadling

Start the lathe and practice until you can treadle evenly and regularly. Holding the gouge very firmly, advance the tool until it bites the wood. It will "chatter" as the arrises on the wood come round to meet it—the workpiece should, of course, rotate towards the tool. There will be a tendency for the wood to force the tool away and out of cut.

The depth of cut can be regulated by raising or depressing the handle end, the tool itself can also be drawn back if the cut is too coarse. Much depends upon the kind of timber, and upon the particular characteristics of the piece being turned—grain-shape, knots, etc. If all goes well, a groove will be formed at the place where the tool encounters the wood.

Working Along

Without altering the angle of the tool, now draw it back out of cut, and move it a little sideways, to the left, so a new part of the wood comes opposite the tool. Proceed as before, and carry on until a few inches of the workpiece have been roughed down in this manner.

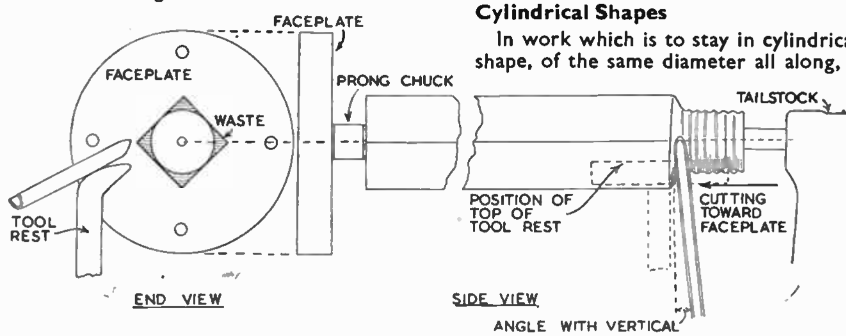


Fig. 4—Two views of work in position and the angle of the gouge

The appearance will now be as in Fig. 4.

The next stage is to take another cut over the portion already roughed down, so that the ridges between the grooves are wiped out. If the gouge is ground to a pointed "spoon", its side can now be brought into cut, still pointing it slightly towards the headstock side and working towards the left.

Should the gouge have a less pointed end, it can be used almost end-on at this stage. Different workers (almost always they grind and shape their own tools) have preferences for one shape over another.

The writer advocates the more pointed shape shown in the diagrams, since the sides of the spoon are then so useful for fine cuts at a later stage in the work, either on flat parts or in working curves and sweeps.

Further stages are to work the gouge along the wood until a fairly smooth and even surface is obtained (the side of the tool gradually more and more in cut). Finally shape the portion of wood already roughed so a true cylinder is obtained.

Cylindrical Shapes

In work which is to stay in cylindrical shape, of the same diameter all along, a series of flats are worked after roughing down, say, a flat at each end and another midway.

These are gauged for equal diameter with callipers, and then the intervening portion of the work is carefully brought to the same diameter with the gouge. It is wise to defer the use of the chisel until due skill and practice with the gouge has been gained.

(To be Continued)

A Special Note from the Editor

I am delighted to present this week the first of our issues which will have an increased number of pages. They have been a long time coming, but restrictions and controls have prevented the use of paper with a free hand. Now, however, we are in the right direction and consequently can offer readers a more varied range of Hobbies to please them. There are some splendid things in store for you—the first of which is the opportunity to make a model of Saint Paul's from the patterns and kit offered. Each issue is prepared with care and thought so that hobbyites of all ages and interests can be satisfied. It is not easy to please everyone in one or two issues, but I do know, from the kindly letters I receive, that the majority are delighted with the variety offered.

By the way, those who suggest we should double our number of pages should notice the amount of matter we pack in. Compare a page with any other magazine and notice how we get columns of type close together, and run it nearly to the edges of the pages—not wasted room as you find in many magazines. All of which increases your value.

And finally, I must apologize for having to add another 1d. per week to the cost to you. But everyone knows how costs in manufacturing and production have gone up, and in order to make ends meet, this just had to be done. I know, however, that every reader will feel he is still getting good value for money, information which can give him enjoyment, and knowledge which can save him pounds. The loyal readers who have followed these pages for so long, will still, I know, delight in continuing to enjoy them—to their own great advantage.

The Editor.

A combination of carpentry and leatherwork in this

LEATHER-TOPPED STOOL

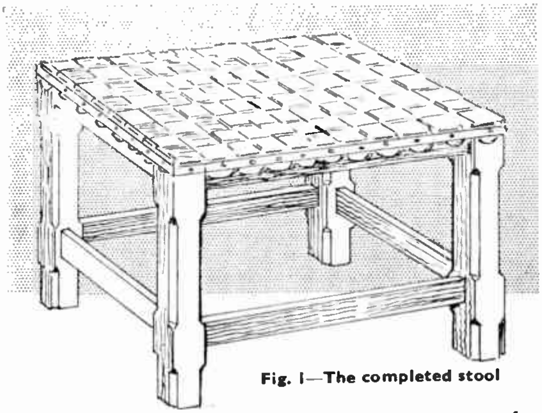


Fig. 1—The completed stool

THE neat little stool shown in our illustration at Fig. 1 is very simple to make and would form a delightful gift. The ordinary kit of household tools will be found sufficient for the job, just the usual handsaw and tenon saw, mallet and chisels.

The size of the stool is 16ins. long, 12ins. wide and it stands 12ins. high. These sizes, of course, can be varied, and the legs and rails cut accordingly.

The first thing to do in commencing to make up the stool is to set out and form the legs. If a set of ready-made turned legs cannot be obtained for the job, then some pieces of 1⅜in. square stuff should be cut off 12ins. long, made smooth on all surfaces and then marked out for chamfering, as detail, Fig. 2.

Grooved Legs

The grooves in the top of the legs are shown in the plan and details and should be cut in ⅜in. deep, 1½ins. long and ⅜in. in from outside edge. The mortises for the lower rails will also be set in ⅜in. from the face on two faces of each leg. In Fig. 3 is shown a plan looking down upon the stool. One half of this plan shows the construction of rails and legs, while the right-hand half shows how the leather strips forming the seat are interlaced.

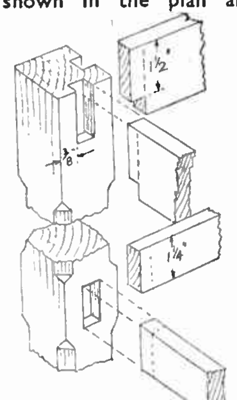


Fig. 4—Details of leg grooves and rail joints

The simplest way to cut the grooves after they have been carefully drawn out on the wood, is to bore four ⅜in. diameter holes ⅜in. deep within the lines, then to clean out the small amount of unwanted wood that is left with a ¼in. chisel, cutting down cleanly to an even depth of ⅜in.

If the worker feels unable to make a good job of the grooves and mortises in the legs, and, perhaps, the angle chamfering also, it would be best to put them out to be done by a capable carpenter.

When all the slots and mortises are cut, the eight rails to fit them are set out. The cutting list given will give the proper sizes. Note that the details shown in Fig. 4 are shouldered ⅜in. back to make a secure and accurate fixing. In the plan, Fig. 3, the side rails are noted as A, while the end rails are shown as B.

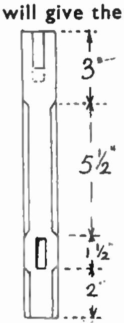


Fig. 2—The leg

Four blocks are cut to an angle of 45 degrees and are checked out to fit round the legs, as in the detail, Fig. 5. Glue these well in place and add a screw as shown. All the four smaller outer rails, C and D, are cut in between the legs, as seen in the plan, Fig. 3, and should finish flush with them on the outer faces. Glue and one or two countersunk screws will hold these rails well in place.

If the chamfering of the legs is done by the worker, then they need to be set out accurately and the downward cut ends cut carefully with the chisel before the other wood is cleared away. Mark the chamfer line in pencil on each face of the leg so that the actual and finished width of each chamfer is symmetrical.

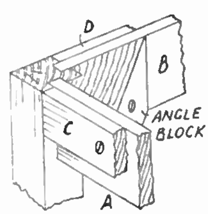


Fig. 5—The angle fixings

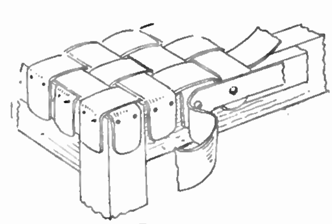


Fig. 6—Work on the top strips

Finish

Regarding the finish to be put upon the wood, much will depend on the material itself. Oak, of course, is the best and soundest wood to use, but this is now difficult to get. It might, however, be possible to get some good second-hand stuff from a builder's yard. Oak should be either fumed or stained and afterwards wax polished. If pine or some such softer wood is used then this could be stained dark and varnished.

CUTTING LIST FOR STOOL

2 Side Rails, top, 14ins. by 2ins. by ½in.
2 End Rails, top, 10ins. by 2ins. by ½in.
2 Foot Rails, 14ins. by 1¼ins. by ½in.
2 Foot Rails, 10ins. by 1¼ins. by ½in.
2 Outer Rails, sides, 13¼ins. by 1in. by ⅜in.
2 Outer Rails, ends, 9¼ins. by 1in. by ⅜in.
1 Piece of deal or pine for angle blocks, 14ins. by 2ins. by 1½ins.
4 Legs, 12ins. long by 1⅜ins. square.

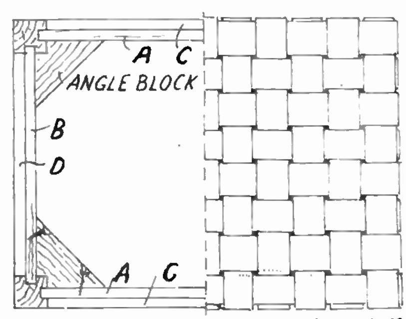


Fig. 3—Half plan of top, and a plaited half

The Top

The leather top can now be prepared. The strips of leather should be about 1⅜ins. wide dressed over one end first and nailed with two cut nails or tacks. The cross strips are next interlaced and the other end then well stretched and similarly nailed. When all the strips are in position a finishing strip is put all round and fastened with large-headed brass nails, as shown in the detail, Fig. 6. The ends of all the leather strips should be neatly cut to shape with a sharp knife to prevent frayed edges.

Add to the usefulness of your kitchen table with a gate-leg
TABLE EXTENSION

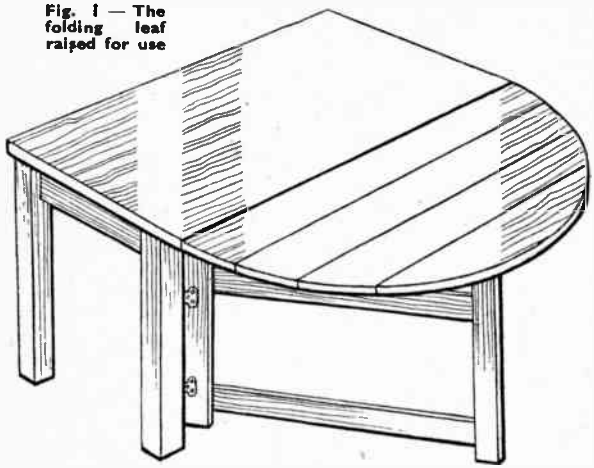


Fig. 1 — The folding leaf raised for use

HERE is something that thousands of wives would find useful—saving both time and labour—and which any household handyman—without special tools or skill—could make cheaply by following these simple instructions. Few people would think of buying a gate-leg table to use in the kitchen, but where the kitchen is quite small—a folding table is a boon to the busy wife.

If the following instructions are carefully carried out, you will have a folding table which is amazingly strong and firm, and pleasant to the eye, which has no sharp corners for children (or even grown-ups) to knock against in the limited space of your kitchen, and which calls for no special tools, skill or big expense, and can be made in a few hours.

Few Cheap Requirements

Even for a very large flap, the total cost should not exceed £1. The writer used secondhand wood, 1in. planks for the flap and leg and ½in. planks for the 'gate'. Almost any wood will do, but if you have to buy, tongued and grooved boards are suitable, for being fixed together gives them added strength and they are easy to work. Best of all would be a single piece of 1in. wood for the flap, but this may not be available.

An ordinary hand saw will serve, several cuts being made, and the resulting sharp edges smoothed with a wood rasp. Chisel, hammer and screw-driver are the only other tools needed.

Place out the planks on floor or large table, as seen in Fig. 2. The side (AB) should be the length of the table edge. Find its centre and draw a line (CD) at right angles through this point. Then, with a piece of string joining a pencil and a nail, find, by trial and error, the point on this line to make the most of your wood.

If a plain arc is not suitable, mark off points (E) and (F) on the edge of the last plank but one, making them of equal distance from the line (CD). Bisect the distance (AE) and draw the line (GH) at right angles to (AE). Any point on this line (GH) can be used with your nail, string and pencil to make an arc which will pass through both (A) and (E).

Repeat this procedure on the other side and, if the same radius is used for your arc, then the sides will be identical. Finally, by trial and error, you may find the point on the line (CD) which will put an arc through (E) and (F), completing a symmetrical shape for the flap.

Now cut out your wood as in Fig. 3. If using an ordinary saw, several cuts should be made, as illustrated, and the resulting sharp edges smoothed off with a wood rasp.

Put the shaped planks in position, and nail or screw on battens securely, as in Fig. 4. The nails should not be so long as to stick up above the table top, for nothing should mar the smoothness of the top. Hinges called 'back-flaps' should be used, for these are wider and will take more strain than ordinary narrow hinges.

The detail at Fig. 5 shows the construction of the gate-leg. The cross-pieces (B) and (C) should be nailed on behind the plank (A). Piece (A) should be several inches shorter than the table leg (D) so it will not touch either floor or underside of the table. (D) should, of course, be exactly the distance of the flap from the floor.

The lengths of (B) and (C) should be the same and can only be found by experiment. They should be as long as possible so that, when the gate is hinged to a table leg, the gate leg will be near the outer edge of the table in the (V) formed by the battens under the flap. But they must not be so long as to make the leg collide with the battens when it is being opened or shut.

Assembly

The edge of most kitchen tables projects sufficiently to enable the flap to be let down with the gate-leg folded back behind it. If not, it will be necessary to nail on a strip of wood an inch or two wide, otherwise the flap will not hang straight down and will be unsightly.

If the flap is made of wood thinner than the table top, a chisel must be used to sink the hinges into the underside of the table, so the tops of flap and table are level with each other. Also it may be found an advantage to nail on a wide plank (shaped to fit into the angle made by the brackets) on to the underside of the flap, on which the top of the gate-leg may move freely.

The rasp and glasspaper will smooth off any rough edges. Plastic wood or putty may be used to repair any snags or holes in the top. A coat of paint to tone with kitchen colour scheme will improve the gate-leg.

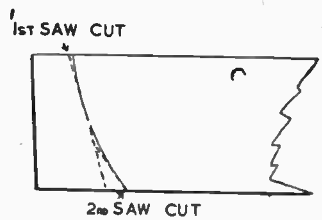


Fig. 3—Shaping the boards

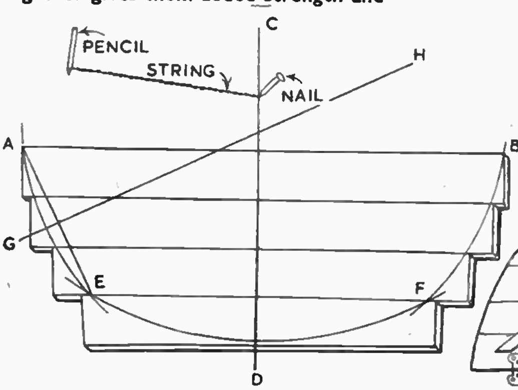


Fig. 2—Marking the boards with string and pencil

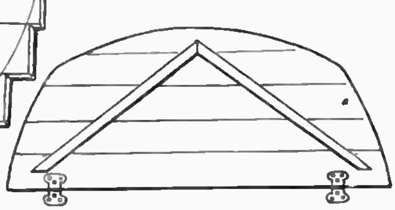


Fig. 4—Underview of legs and hinges

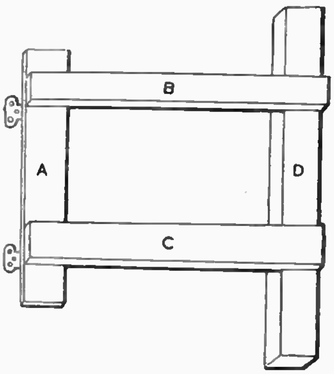


Fig. 5—One of the gate legs with hinges

The amateur painter at home should certainly try WOOD GRAINING

THE graining of common wood, deal and pine for example, to resemble oak, mahogany or walnut, is an interesting artistic craft. It is also a highly skilled job, which it would be idle to suggest could be successfully done by an amateur, without practice.

A good and passable imitation can be expected though, if the amateur will take sufficient trouble, and though the results may not compare with professional work, at least it will prove a lot superior finish to stain and varnishing. A few hints on how to do this work are given below.

The tools needed are one or two combs, made in leather, ⅛in. thick, and shaped as at Fig. 1 (A) and (B); a small hog's hair brush, known as a fitch, shown at (C) for lining work, that is putting in the grain on mahogany and walnut imitations, will also be required.

Work in Oak

Oak graining is, undoubtedly, the most popular and we will deal with that first. The wood, if new, should be painted with red priming and then with a coat of white or lead coloured paint, as an undercoat for the graining ground. The colours mentioned should preferably be mixed at home, the necessary pigments being bought at most oil shops or colour stores. On the graining ground, the second coat, called the graining colour is applied, on which the process of imitating

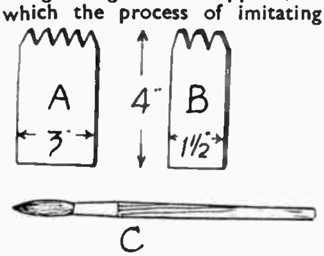


Fig. 1—The three tools needed

the particular grain of the chosen wood is to be carried out.

For light oak, as a graining ground mix 7 parts of white lead and ½ part yellow ochre, ground in oil, with ½ part of driers. Work well together and thin down to working consistency with turpentine and linseed oil, two of turpentine to one of the oil.

When this has dried, prepare the following graining colour, 2 parts raw umber, ground in oil, 1 part Oxford ochre, also in oil, 1 part putty, and 1 part driers. Work the putty well up with the rest of the ingredients, mix with turpentine and linseed oil (equal quantities of both) to thin down.

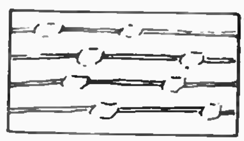
This should be brushed out very thinly on the work, and while still wet, grained. For dark oak, mix as a graining ground 3 parts white lead, 1½ parts yellow ochre, ¼ part burnt umber, ¼ part venetian red, ½ part driers, with turpentine and linseed oil (equal quantities).

When dry, for the graining colour ½ burnt umber is mixed with ½ gill each of gold size and terebene and worked up smoothly, then thinned down with boiled oil and turpentine.

Combing

Oak graining for the amateur can be limited to straight work, drawing the leather combs down or across the stiles and rails, and working a flowering for the panels with the finger nail, covered with a piece of soft rag. Fig. 2 (D) shows a suggestion as to the latter. It is really a simple job, and a little practice on a spare piece of wood will help to acquire the knack. A study of a grained door or piece of furniture, or a plank of the actual wood, will be more helpful still.

A good effect is obtained, especially on narrow parts, by drawing the combs down, and with the tip of the finger, covered with a rag, 'patching' the lines at intervals, as at (E).



E

The graining will appear rather harsh at the edges, especially when flowering or working the pattern shown at (D) and a softening effect can be obtained by touching those edges with a soft brush. Any small brush will do, if the bristles are spread out with the fingers and drawn lightly down over the lines. This will cause the grain to blend with the background.

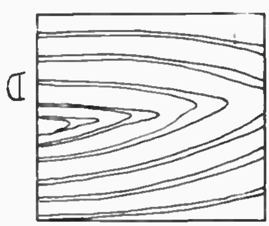


Fig. 2—Oak graining

Imitation Mahogany

When the graining work is done, let it dry, then give it a coat of oak varnish to finish off. Remember that the graining colour should be thinly applied, and be well brushed out. Mahogany graining might well be tried, a graining ground and graining colour being required as for oak, though of different tints, naturally.

For the graining ground mix 3 parts of Venetian red in oil and ½ part orange chrome, first grinding the chrome with a knife on a piece of glass to a paste with a little linseed oil. Mix all well together with a little gold size (about a gill to 3lbs. of colour), then thin to working consistency with boiled oil and turpentine, two parts of the former to one of the latter. The graining colour to be applied when the ground colour is dry, is made up as follows.

Vandyke brown, 2 parts; Lake, 1 part. Rub up together in water to a paste and thin down with half beer and water. Brush this over the work thinly. The effect of graining can be obtained by using the hog's hair fitch, dipping it in the colour and drawing fine strokes down the wood, as at Fig. 3.

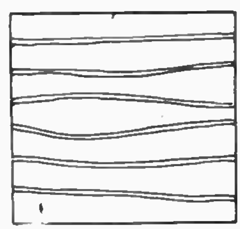


Fig. 3—Mahogany type

Soften the edges, as for the oak graining. Do not overdo this softening, but try and blend the edges of the graining lines with the background. Varnish with clear copal varnish to finish.

Walnut Effect

For a walnut effect two separate graining colours are applied over the graining ground. For the latter make up the following, 3 parts white lead in oil; 1½ parts yellow ochre; ¼ part burnt umber, and ¼ part Venetian red, also in oil. When this is applied and quite dry, the first of the graining colour is put on. To make this up, use 1 part burnt sienna in water, 2 parts Vandyke brown, and rub up on the glass plate with a knife. This is rubbed on the groundwork and mottled by dabbing with a brush in patches.

Over this a second graining colour is applied, made up with 1 part Vandyke brown and ½ part drop black, worked up with water on glass plate and thinned down with porter or beer. With the fitch, line the work as at Fig. 4, slightly softening the edges as before. This, like the mahogany graining, should be clear varnished when dry.

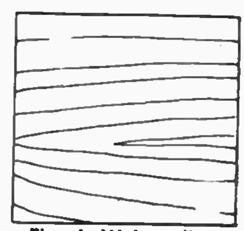
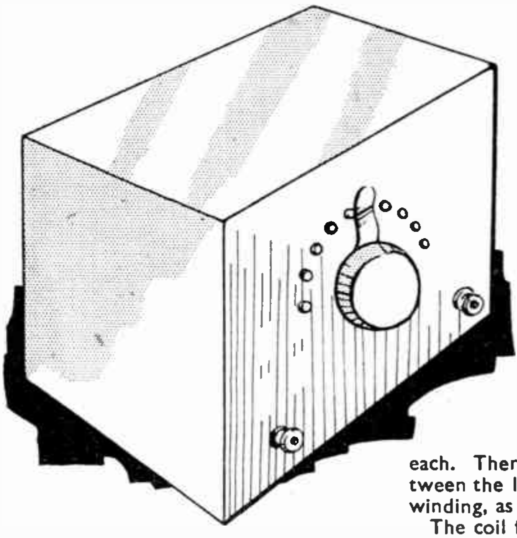


Fig. 4—Walnut lines

Readers will find the work quite an interesting and fascinating change from the usual painting and varnishing, and a study of actual sample pieces of the woods mentioned will be a great aid to a realistic effect. Like everything else worth while, practice means a lot, and even text books cannot cover the intricacies of the ever varying grains of such fancy timbers, leaving much to the individual skill of the worker. You should certainly try your hand at this interesting work and you will be surprised at the resultant improvement.

Unusual type of tuner can be made for radio in this tapped

INDUCTANCE TUNER



FOR tuning, a variable condenser is generally used, though as this is a comparatively expensive item, simple receivers may make use of other methods. A form of tuning not often seen is that provided by a tapped inductance. Such a tuner is easy to make and gives very good results.

Because different numbers of turns can be selected by means of the switch arm, coil winding details are not critical. Those given are only to serve as a guide.

Formers of different size can be used, and the wire may be enamelled, silk or cotton covered. The gauge of wire is also not critical, but very thin wires (smaller than about 36 S.W.G.) should be avoided if maximum efficiency is to be obtained.

Winding the Coil

A former about 2ins. to 2½ins. in diameter and 3ins. long is most convenient. Wire of 28 S.W.G. is suitable, and the end is anchored by passing it through small holes made in the former. Thirty turns are wound on, tightly side by side.

Two more small holes are then made and a loop of wire about 3ins. long passed through and pulled tight. Ten more turns are then wound on and a second loop made. This procedure is repeated until there are nine loops in all, with ten turns between each. There will also be ten turns between the last loop and the end of the winding, as shown in Fig. 1.

The coil former itself can be made by taking a strip of cardboard 3ins. wide and 10ins. or 12ins. long and winding this tightly round some suitable smooth object, gluing where the cardboard overlaps. Then slip off and leave to dry.

The finished coil is mounted on a suitable baseboard by means of a small block of wood at each end. All the tappings should be fairly evenly in line, and all turns must be wound in the same direction.

Arm and Contacts

A rotating switch arm should now be made. This can be arranged to pivot on a large bolt fixed to the centre of the front panel. To facilitate operation, a knob is added. For the switch arm a strip of thin metal about 1½ins. long and ¼in. wide is satisfactory. It should be curved slightly at the free end so that it will pass over the contact studs easily.

For the studs, 6 B.A. round-headed bolts are most convenient. A dozen, with nuts, can be purchased for a few pence. Another method is to use small round-headed wood screws, either bringing the loops through small holes and securing them under the screw heads, or soldering the wires to the projecting points of the screws.

Connections

Two terminals are also mounted on the panel and the beginning of the coil winding is attached to one of these. Each loop, and the end of the winding, is taken to its appropriate contact screw. A lead is taken from the pivot screw of the contact arm to the second terminal.

By turning the knob, any number of turns between thirty and one hundred and twenty can be selected. This will enable stations throughout the medium wave band to be received. Tuning will be in ten definite steps, and this is quite accurate enough for crystal sets and similar circuits.

Making a Crystal Set

Fig. 3 shows how a detector and phones are connected to the unit to form a complete crystal set. The detector will then be adjusted in the usual way to obtain maximum volume, and the knob on the unit turned to select the station. Really good signals should be obtained up to 100 miles or so from the more powerful B.B.C. stations.

The unit may also be used as an aerial tuner by connecting it in series with the aerial lead in. Where the user lives rather near a station which causes interference, this can be reduced considerably by adjusting the knob so that the unwanted signal is prevented from passing through to the receiver.

Both panel and baseboard will need to be about 3ins. by 4ins. and a small cabinet to contain the unit can easily be made.

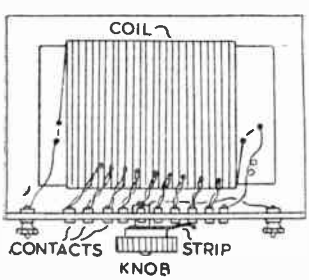


Fig. 1—Top view of the tuner

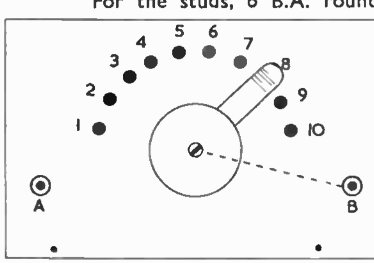


Fig. 2—Front view showing contacts

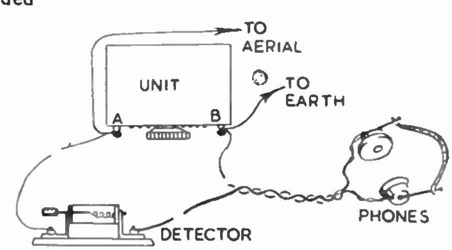


Fig. 3—Using as a crystal set

Aquarium—*(Continued from page 5)*

enamel. The addition of wooden or metal handles, one at each end of the base, is optional, but helpful, if it is necessary to lift the aquarium at times to empty it.

Now keep the aquarium partly full of water, for about three weeks before putting in the fish, changing the water several times in the interval. If you can buy the cement for fixing in the glass sides, by all means do so, but if not three recipes are given underneath for making it up at home. You can choose that which needs the ingredients most easily obtainable in your locality.

(1). Equal parts red lead oxide, varnish, and drying oil, kneaded to a paste.

(2). 1lb. each of litharge, fine white sand, and plaster of paris, 5ozs. boiled linseed oil, and a little drying oil. Let this stand for a few hours before using.

(3). ½lb. white lead, ground in oil, ¼lb. red lead (dry), ½lb. litharge (dry), kneaded together. This cement soon dries.

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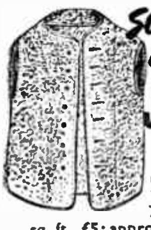

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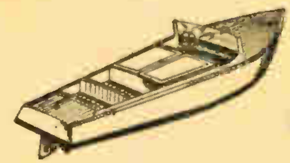

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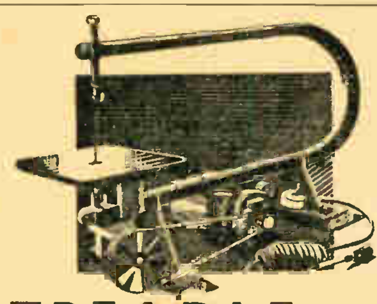

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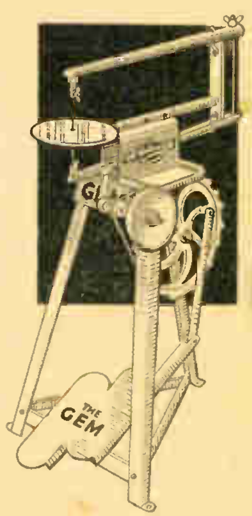

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Hobbies

FRETWORK DESIGN No. 240 SPECIAL

SUPPLEMENT TO HOBBIES NO. 2814 OCTOBER 5th 1949

MODEL OF

ST. PAUL'S CATHEDRAL

SIZE. 16⅞ins. LONG. 11ins. WIDE. 9¼ins. HIGH.

ARROWS INDICATE DIRECTION OF GRAIN OF WOOD.

NOTE. This design sheet is only presented free with the current issue of Hobbies and not with back numbers. Further copies may be obtained.

Materials for making this design are supplied by HOBBIES LIMITED, Dereham, Norfolk.

Price on application.

58 Upper drum of dome. Cut one from thin plywood.

Columns to drum of dome. Cut 24 from 3/16in. round rod.

60 DOME diagonal pieces. Cut four 1/8in.

59 Ribs of dome. Cut 16 1/8in. and glue each side of 56, 57 & 58.

60 Dome segments forming cupola. Cut 8 from stout paper or thin card.

DOME piece 56. Cut one 1/8in. Glue on rib pieces to dotted lines.

DOME piece 57. Cut one 1/8in.

LIST OF CIRCLES FOR DOME.

46 6¼ins. dia. Cut one 1/4in.
47 4⅞ins. dia. Cut one 3/16in.
48 3½ins. dia. Cut two 1/4in.
50 3⅜ins. dia. Cut one 3/16in.
51 2⅝ins. dia. Cut two 1/8in.
52 2ins. dia. Cut one 3/16in.

Note that pieces 46 are glued together to form one thickness of 1/2in.

49 Dome. Base to columns. Cut one 1/8in. The feet of the columns to be glued into the holes. Half only shown.

CENTRE LINE

CENTRE LINE

53 Ranges of dome. Cut one 3/16in. Half only shown.

55 Roof overlays. Cut one of each to the lengths given 1/8in. thick.

5¼"

3½"

9¾"

54 Lower drum of dome, behind columns. Cut from thin plywood.

P.W. Above 3. Cut two.

P.W. Above 4. Cut two.

PARAPET WALLS (P.W.) GLUE TO ROOF ABOVE MAIN WALLS. Cut from 1/8in. wood.

P.W. Above 12. Cut one of each.

P.W. Above 11. Cut two.

PW

Above 7. Cut four.

P.W. Above 6. Cut two.

15 Overlays on piece 5. Cut two from thin plywood.

TOP

TOP

CORNICE STRIP

Columns to main entrance West front. Cut 12 1/8in. Dia. rod.

1⅝"

Upper Columns to front. Cut 6 1/8in. dia. rod.

1⅝"

PW

Above 8. Cut four.

PW

Above 9. Cut four.

PW

Above 10. Cut two of each.

PW

34 Roof overlays on each SIDE of dome. Cut two 1/8in.

62 Piece above upper columns on W. front. Cut one 1/8in.

Facia above lower columns on west front. 61 Cut one 1/8in.

CORNICE STRIP

43 Upper steps of portico. Cut two 1/8in. Glue columns to dotted lines.

44 Steps of portico. Cut two 3/16in. ALSO Roof of portico.

PEDIMENTS

35 Coping to pediments 23. Cut 6 from thin plywood.

Overlay 34. Cut 3 from thin plywood.

GLUE HERE

Pediments 33. Cut 3 1/8in.

CENTRE LINE

NOTE. THE CORNICE STRIPS ARE CUT FROM 1/8in. SQUARE STRIPWOOD.

Pieces 41 on towers. Cut four 1/8in.

38 Lower squares of towers. Cut four 3/16in.

38

Hobbies Kit No. 240 Special for making a small model of

ST. PAUL'S CATHEDRAL

MOST craftsmen have at some time or other had the ambition to make a really outstanding piece of work to prove their ability with the fretsaw and a few tools. Such an ambition can be realized by making the striking model of St. Paul's Cathedral, illustrated on the other side.

The work involved cannot, of course, be undertaken by a beginner, but those with patience and a certain amount of experience can confidently set to work. The kit of material provides all the necessary parts. They are cut to the patterns shown, and glued together to form a completed model $16\frac{3}{4}$in. long.

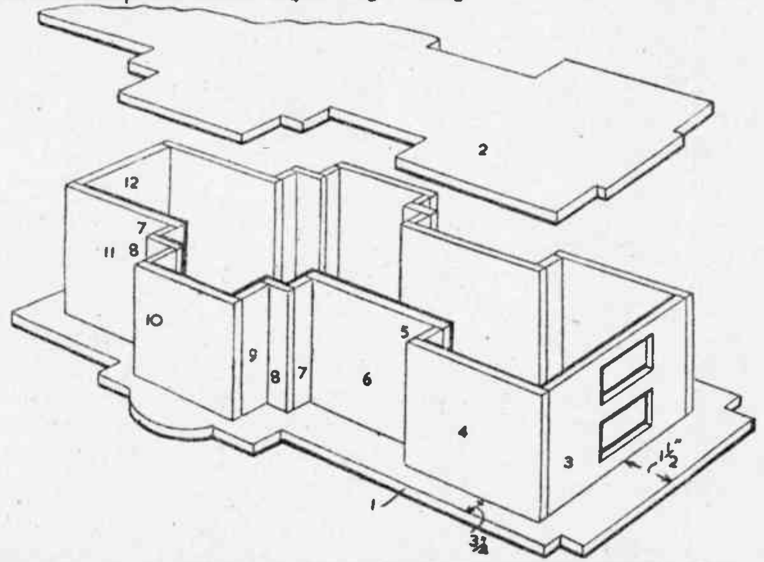


Fig. 1—Framework of the model with numbered parts but without window overlays

marked out on a piece of $\frac{3}{16}$in. material. In the kit provided, all the $\frac{3}{16}$in. parts are cut from the composition board; the thinner material is in wood.

In some cases, the instructions say glue two together to get an added thickness, but if you happen to have some material the actual thickness needed, you can easily use this. Two pieces of $\frac{1}{8}$in. glued together will form a $\frac{1}{4}$in. board, but if you have a single piece that thickness, it will save the trouble of gluing. Take great care in measuring and marking the parts, as well as cutting them. Test each one out with any other comparative pieces as you go along.

walls of the model are built on the base and glued upright. The roof piece is cut but not yet glued on. Note the position of parts (3) and (4) in relation to the edge of the base, as these form the first two walls to erect. Glue (3) and (4) firmly, and from there build the other parts in numerical order up to (12). Test accuracy with the square, and if necessary, glue internal blocks to strengthen. Glue card behind the two open apertures in part (3).

Overlays

Now add the various overlays cut from thin plywood. Their position is indicated on each, and reference to the numbered parts in Fig. 1 will help in fitting. Ends which come together can be easily butted or angled in. The roof can be added at this stage if you wish, or it can be left removable and used as a base on which the dome, towers, etc., are built to form a complete unit.

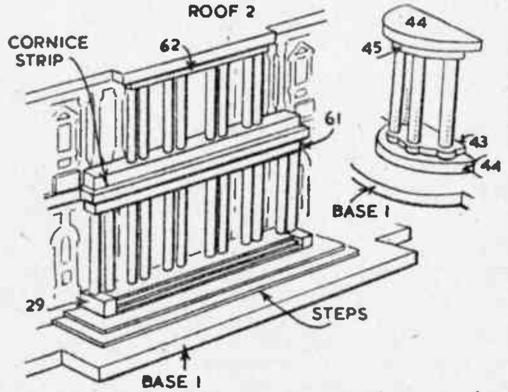


Fig. 2—Detail of main frontage, steps and side porches

roof is finally fitted in.

At each side of the model is a columned portico seen in Fig. 2. The position of the part (44) is central to the semicircle in the base itself, and from then the other parts are easily built up. Columns must all be accurately the same length, and have flat ends for gluing. The cornice piece ($\frac{1}{8}$in. square strip) can now be glued around the model. It comes on the overlay above the window openings, as shown by the dotted lines on the patterns, and as seen in Fig. 2.

Returning to the roof, add the flat platform pieces there shown, and the triangular pediment parts. A detail of one of these pediments is shown, and you see here how the tiny statuettes are added. These are actual little figures, and can be rounded more realistically if desired. Note how the various pieces on the roof are set back or have spaces between.

The Dome

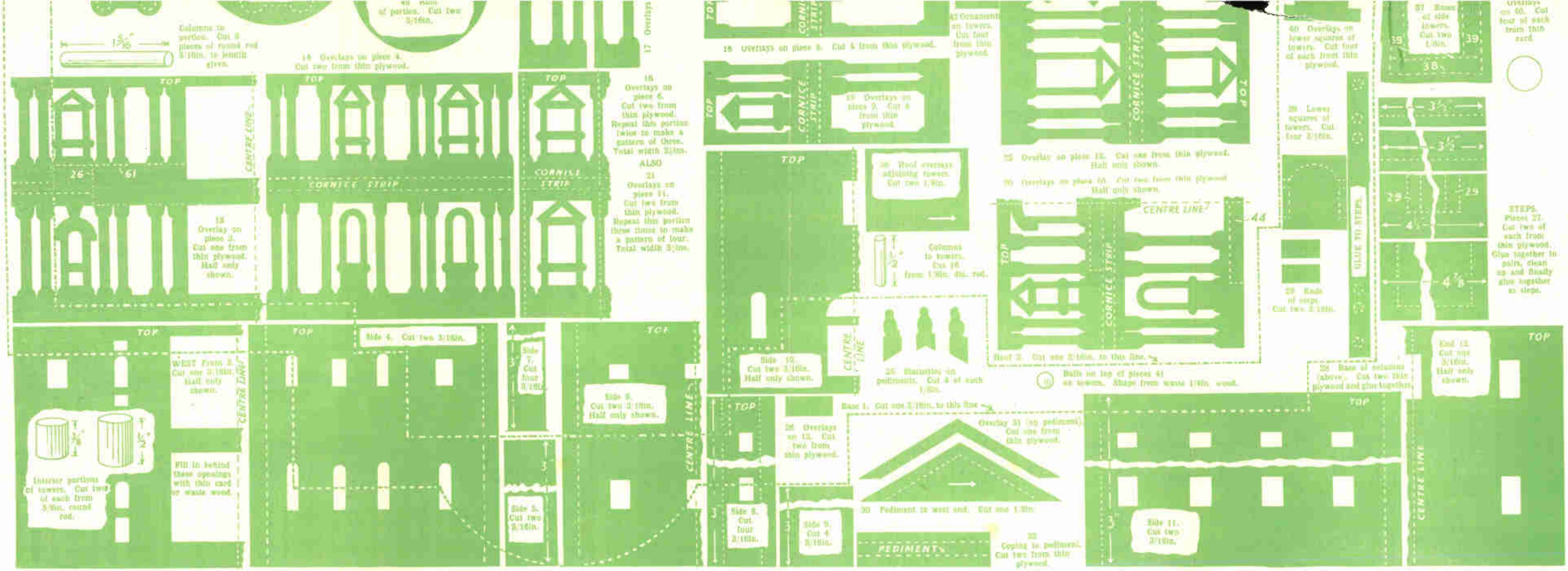
The dome itself is shown in Fig. 4. In this connection, various circles of wood required are detailed in the top righthand corner of the sheet. Other shaped circles are given in full pattern. Two pieces of No. 48 are glued together to form extra thickness. Glue these discs above each other until you get to (49). Cut all the little circles in this part with a $\frac{3}{16}$in. bit, to ensure that the columns will glue in firmly. These columns are $\frac{3}{16}$in. round rod $1\frac{1}{8}$in. long. Glue them firmly upright and evenly. Allow the glue to harden before adding the thin drum piece (54). This is a strip of thin plywood bent round and placed like a collar inside the columns. Part (50) is then glued on, and the others as shown in Fig. 4.

draw a circle with $1\frac{3}{8}$in. diameter on the part (52). Glue to this circle the parts so they come to the edge of the pencil mark provided. This pencil circle also indicates the outer position of the other four rib pieces you see in Fig. 5. These are the diagonal pieces (58) with the rib (59) on each side. Notice that the shorter length of the right angle ($1\frac{1}{2}$in.) is glued to the base of the dome, the outer edge in line with the circle marked in pencil. Cut the segments of the shaped dome itself (60) in card, and glue along the projecting ribs.

Corner Towers

The towers on the west front of the model are seen in the detail, Fig. 6, built up as shown. Note the positions of the columns erected on the two upper pieces (41). On the lower square you have $\frac{1}{2}$in. length of $\frac{3}{8}$in. dowel glued in the middle. Close to this dowel on four sides are glued $\frac{1}{2}$in. lengths of $\frac{1}{8}$in. diameter dowel. A further four columns exactly the same size are glued in at the corners, as shown by the plan in Fig. 6. Above the upper part of (41) a $\frac{3}{8}$in. length of $\frac{3}{8}$in. dowel is glued on centrally, to form the base of the turned ornament supplied in the kit. At four corners tiny round balls, which can be made from waste wood $\frac{1}{4}$in. thick, are glued.

On each side of the centre dowel the ornamental pediments (42) are glued. When you finally glue the towers in place on the roof, these pediments (42) must face the front or west end of the model. Parts No. 40 form overlays round each tower (see Fig. 6) and on these in turn, the tiny rims cut from thin card are glued. Note that in the case of the right-hand tower, a clockface actually is fitted, and this can be indicated by a complete circle of card as



PRINTED IN ENGLAND.

be undertaken; no actual shaping or carving.

A number of points must be borne in mind, however, before commencing, and the actual construction must not be hurried. Study the design patterns first in conjunction with these instructions, and visualize the gradual building.

Numbered Patterns

First of all, the patterns. Each one is numbered, and these particulars duplicated on the various diagrams shown. Patterns should not be pasted down, but traced off or duplicated through carbon paper on to the material. To conserve room, only a portion of some of them are shown. Measurements to which the patterns are to be extended are given, and these must be followed carefully with ruler and square. In the case of overlays, half only is shown in some cases, and this has to be duplicated on the centre line. In two cases also, the pattern itself has to be extended. Note pieces (16) and (21) where the printed part has to be repeated to the width shown.

The base is a large piece, and its exact shape is indicated by the dotted lines which have to be drawn out before commencing. The outline of the roof is also shown by a chain line, and this is

[illegible] similar. Several patterns [illegible] the word 'top' printed near a line, clearly to indicate which is the uppermost edge when the part is in position. Use a fine fretsaw in cutting all pieces, and clean up before fixing.

Now for the actual construction. The sequence given here is generally that of

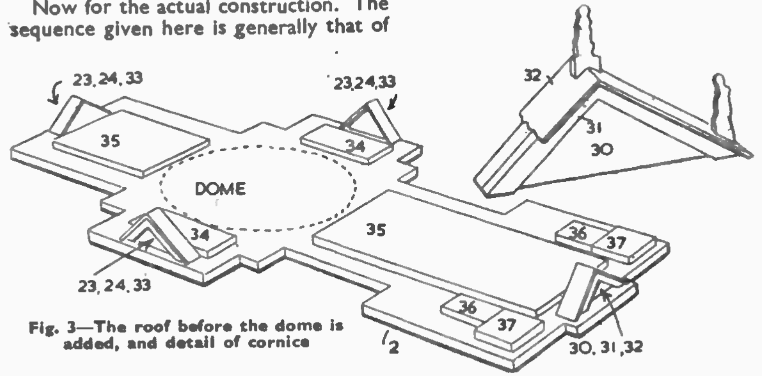


Fig. 3—The roof before the dome is added, and detail of cornice

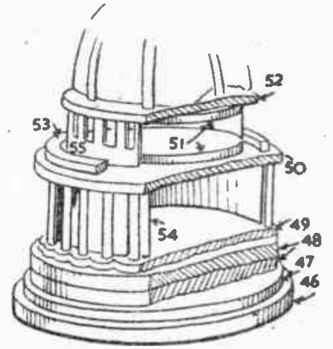


Fig. 4—Cut-away detail of dome

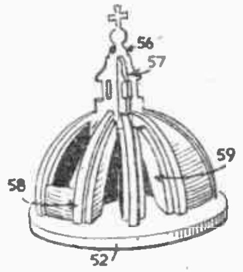


Fig. 5—Dome framework

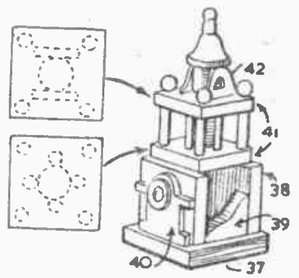


Fig. 6—Corner tower with plan of two platforms

the numerical parts, and must be followed or some awkward fitting will result. By the way, the base is shown as $\frac{3}{16}$in. thick, but if possible, you should stiffen it with a second piece of $\frac{3}{16}$in. stuff of the same shape, or else build the whole model on a $\frac{3}{8}$in. or $\frac{1}{2}$in. board if you have one available.

Fig. 1 shows the general carcase. The [illegible] each is cut from thin plywood with the widest glued centrally at the bottom, and the others above. The two $3\frac{1}{2}$in. pieces are glued on top of each other, and at the end of them the end block is added (see Fig. 2). Along the top of all this is part (28) forming the base to the short columns. These are of $\frac{1}{8}$in. diameter rod $1\frac{1}{8}$in. long. Cut (12), but do not glue in place until you have added the piece (61) which is the fascia on the front of part (3). Glue this centrally and then the columns in pairs between that part and the top step. The columns above this cannot, of course, be added until the

two pieces of (51) are the same in diameter, and the drum is bent and glued round it before part (52) is glued above, with a slight projection all round. The dome is shown in Fig. 5. The two parts (56) and (57) are halved together to be glued upright at (52). Before doing so, however, glue to each of these the rib pieces (59) in the position shown by the dotted lines. There is one on each side of the upright parts (56) and (57) to form a base on which the rounded dome segments are glued.

Now fit (56) and (57) together by the halving joint, and to mark a position,

Final Work

The completed model is now ready for painting, after a final and careful cleaning. It can be treated with grey stone colour poster paint, with the additional markings of windows, stone course work steps, column pieces, etc. These are too detailed to show in the picture here. Fine line work, however, can be carried out if you obtain a large photograph of St. Paul's and follow that through for effect.