

**USEFUL  
DECORATIONS  
FOR CHRISTMAS**  
(See page 183)

VOL. 115

NUMBER 2981

*Made entirely from wood*

# ATTRACTIVE TABLE MATS

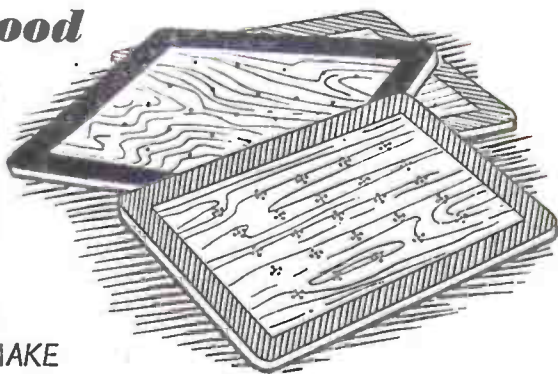
**B**EGINNERS and craftsmen alike should find interest in the designs shown on this page: the beginner for their simplicity and the craftsmen for their clean modern lines.

The table mats are made entirely from  $\frac{3}{4}$ in. thick wood which for preference should be of fairly new hardwood. The number of mats to be made is a matter of personal choice, but a collection consisting of six of  $5\frac{1}{2}$ ins. size; two of 7ins. size and two of the 10ins. size. will be found suitable for the average household. The dimensions of the mats are as follows:  $5\frac{1}{2}$ ins. square; 7ins. square and 8ins. by 10 ins.

### Alternative Designs

Alternative designs are shown, but, as will be seen from the sketches, the same background shapes are used for either.

Little need be said as to the making of the mats except perhaps to mention that when dealing with essentially simple designs such as these, there is a need to take great care to see that the surfaces are really smooth and that the corners and edges are true and at right-angles to the other.



## QUICK AND EASY TO MAKE

### Embossing the Design

The designs are embossed in the upper surfaces of the mats with a punch which will have to be specially made for the purpose. This is a simple task and consists of rounding off the point of a  $\frac{1}{2}$ in. diameter wire nail. A nail of truly circular section should be used and

the point rounded off as shown in the inset sketch.

Mark out the design carefully with light pencil marks and tap the punch gently into the surface of the wood. This must be done carefully otherwise the grain and fibres of the wood will be damaged and mar the appearance of the finished article. Two or three lights taps are all that is needed and the aim should be to put a truly circular hole of no greater depth than  $\frac{1}{16}$ in. into the surface of the wood.

### Finishing

The mats should be stained to a light or medium oak shade and stood aside until these are completely dry.

Strips of adhesive paper are laid along the edges of the mats to form a clean boundary for the coloured borders. Stamp edging can be used provided that the 'perforated' edge is arranged to be on the opposite side to the painted edge.

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HANDYMEN AND HOME CRAFTSMEN

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The dots are filled in with a small quantity of paint of the chosen shade.

Colour is a matter of selection, but the following schemes are quite pleasing:

*'English Rose'*

Pink petals, yellow centres, apple-green border.

Red petals, yellow centres, mid-green border.

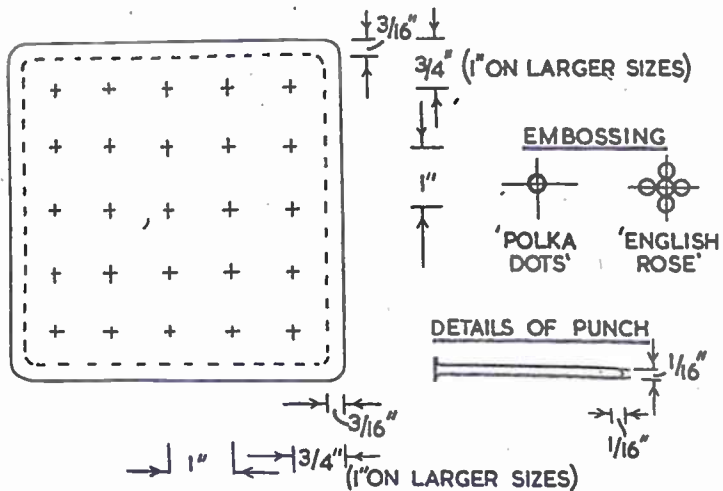
*'Polka Dots'*

Dots in white or any pastel shade with border to match.

Dots in cream or pink, gold border.

Leave the paint to dry out properly before handling the mats and then when everything is quite dry, give the whole two coats of good quality clear varnish which should be chosen for heat-resistant qualities.

If the varnishing is done properly and allowed to dry out, the mats should stand up well to the effect of heat and should also be sufficiently waterproof to permit of their being cleaned with a damp cloth after use. (V.A.G.)



## Attract feathered friends with A NOVEL CHRISTMAS TREE

It is always a joy to give of our bounty in winter-time, and especially at Christmas, if the weather is really like that which Charles Dickens loved to garnish his Yuletide stories with—plenty of snow, and icicles hanging down from the eaves of barns. For the bird friends we welcome to our gardens and backyards will most certainly appreciate our offerings. Furthermore, they will reward us with their merry twitterings, little scraps of song, and their 'winning ways'.

### The Idea

At Christmas time it is a good idea to obtain a small spruce fir—about 4ft. high or so—and plant it in a suitable pot. Place it within view of your dining-room or your kitchen window. Now decorate this tree with all kinds of dainties calculated to win the hearts of the feathered guests—a coconut sawn in two and pierced with holes to enable you to wire it firmly on to the tree, brazil nuts cracked and half-peeled, scraps of suet, a necklace made of a dozen 'monkey nuts' threaded on string, and a bone or two left over from the Christmas dinner.

In the morning, and again in the afternoon, miscellaneous scraps and crumbs of bread and cake may be strewn on the ground beneath the tree. And a pan of water will be appreciated. Having arranged all this, then you can sit in your chair and enjoy seeing your feathered guests having a good time. Until all the 'decorations' have been

sampled, not a minute of the day will pass without one or two visitors.

To the feast of good things will come various birds, and if you live in the country or in the outer suburbs of town or city a mixed company will assemble. Tom-tits, of course, will be there, and most amusing they are in their acrobatic juggling to get at the best scraps. Great tits, cole tits, and, maybe, a pair of marsh tits in black satin caps and rusty-grey waistcoats. Occasionally, a greenfinch, leaving his ash tree seeds, will venture to the feast; but, like the true rustic he is, new tastes seldom please him, and he soon flits off to join a troop of his fellows fluttering in the shrubbery.

Starlings come in their mincing, jerky manner—and bounce in suddenly and with quick, nervous movements pick up as much as they can in a short space and scatter the tits and the robin. For, naturally, little Robin Redbreast will be present, though he much prefers to have a table to himself.

### Greedy Blackbirds

Blackbirds are rather greedy when they come to the festive 'board', and become jealous lest any other should get the choicest morsels. You will, doubtless, be amused to see a yellow-bill chasing a jet-black brother from the spot, to return hastily and pounce upon some tit-bit. But of all the visitors, those which get the lion's share are the cheeky sparrows, who arrive in their dozens at the mere hint of a meal.

The nuthatches—if you live in a woodland district—that come to the festivities appear to favour the suet scraps as much as the nuts. The latter they attack head downwards, hammering away at the coconut as hard as they can. Thrushes hop in suddenly among the crowd, pounce on a tasty morsel and make off with it at once.

### Great Fun

It is the blue tit that affords most fun. With blue crest raised and neck feathers ruffled, he dodges from bough to bough of your Christmas tree, scolding: 'Zee, zee, churr, churr, churr!' We have much admiration for the gay midget 'with all his feathers bright', who pitches head downwards on to a chicken bone suspended from a branch-end. He climbs round it, clinging with needle-like legs, and picks off the shreds of meat with eager dusky bill—the perfect acrobat. 'Nimblest, merriest' bird, who can regard his antics without a smile, even though, if you approach him too close, he will scold the friend who has provided the feast!

If you would enjoy the unfeigned delight and gratitude of the birds—which will surely be well worth your expenditure of a little time and thought—try this experiment of entertaining feathered guests from the waysides and hedgerows with a novel Christmas tree. Or, at least, rig up a bird-table near to your window, and decorate it with household scraps and 'left-overs', from your own Yuletide feast. (A.S.)

## SPECIAL FOR GARDENERS

# A Useful Garden Rake

IN order to keep a lawn in good condition it is necessary to rake over the surface occasionally to remove old leaves and other rubbish. It is also essential to rake off any moss, and as this operation helps to aerate the soil it is very beneficial to the lawn.

The ordinary garden rake is generally too stiff and heavy a tool to use for this purpose and unless used carefully it is liable to tear up the grass rather badly.

A somewhat lighter tool with more springy prongs is needed to do the job efficiently, and such a tool can be used throughout the year except perhaps during the worst winter weather when the grass is resting.

The keen gardener can easily make one for himself and this article describes the simple operation. The rake consists of a number of springy wire prongs held in position on a metal plate which is fitted on to a convenient handle. About 16 to 20 prongs is a very suitable number to employ.

### Plate from Stout Metal

Make the plate from a piece of fairly stout sheet metal, either iron or brass being quite suitable. For a small rake cut a piece of metal 6in. long and 6in. wide to the shape shown in Fig. 1.

The top rectangular part is formed into a cylinder to fit round a 1in. diam-

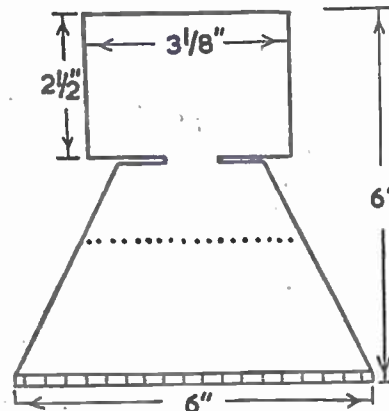
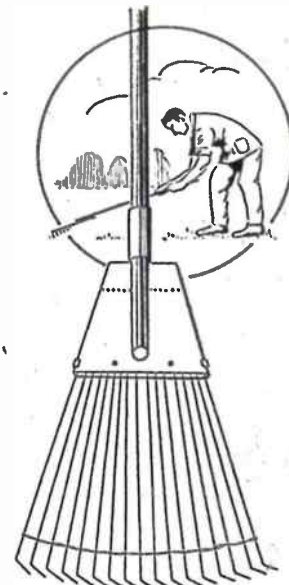


FIG 1

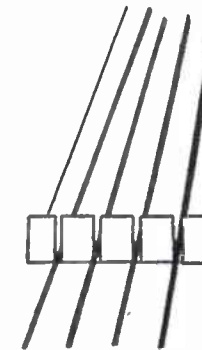


FIG 2

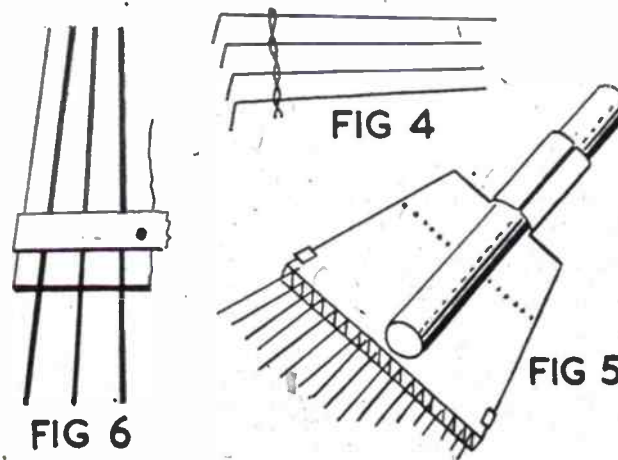


FIG 6

FIG 5

eter broom handle, while 1/4in. of the opposite end is turned over at right angles. This is slotted to hold the wires rigid and also to keep them evenly spaced as shown in Fig. 2.

For a small rake old cycle spokes which are 14 S.W.G. are ideal material to make the prongs with. One end is already bent over at right angles with a neat head, and this can be threaded through the metal plate in exactly the same way as they are attached to the cycle hub.

When the wires are fitted in the slots of the plate they will need fixing down rigid and this can be done in several ways. A 1/4in. wide band of metal fitted as shown at Fig. 3 is probably the best method. Each end is bent over and two or three rivets are fixed at intervals on to the plate.

Another very good way of fixing the wires is to use two plates of exactly the same size and to clamp the prongs in between them, securing them with a few rivets. It is possible to dispense with rivets if the covering plate is made a little wider and the edges are turned over and hammered down tight. By using two plates extra strength is obtained and this is really essential if a larger rake is made with thicker wire prongs.

The actual length of the prongs is not really important but they should not be left too long, the length of an average cycle spoke (12 ins.) is just about right for a small rake. Larger ones can be made longer in proportion.

Bend the free end of each prong over at about right angles, allowing them to

(Continued on page 180)



## REPLIES OF INTEREST

### Welding Problem

**MY** occupation is a welder and I live in an area where the electric main supply is D.C. 230. Is it possible for me to make or obtain a welding set to work off the above supply? (B.H.—Sheerness).

SINCE you have D.C. mains you cannot use a transformer to obtain increased current, or reduce the voltage. Accordingly, severe difficulties arise if welding equipment is required. A D.C. type motor may be used to drive a generator whose output is suitable for welding purposes, but such equipment is likely to be expensive. D.C. supplies are not suitable for many purposes, and are likely to be replaced by A.C. supplies in the future. In view of the unsuitability of D.C. mains for welding, an alternative to electric welding might be considered. Oxygen-acetylene equipment is an example of this. If you are anxious to obtain electrical equipment, it is suggested you write to Revo Electric Co., Tipton, Staffs, or contact local shops.

with leather, rubber or fabric. The string is composed of three strands of hemp, dressed with a glue solution and perfectly round and smooth. The string is lapped with carpet thread for a few inches above and below the nocking point, the nocking point being further covered by filosele silk, so that it fits the nock in the arrow. When 'strung', the string should be about 5½ ins. to 6 ins. from the handle of the bow. The 'weight' or pull should be about 50 lb. and the arrow length should then be about 28 ins. The arrow shaft should be of sound straight-grained wood, preferably red deal. A piece of hardwood is usually spliced to the point end to receive the 'pile' or point which should be cylindrical. The nock is cut square and the set of three feathers, equally spaced, should preferably be body feathers from a turkey or a peacock, and measure about 1½ ins. long and ¼ in. deep, all curved the same way and square or balloon shaped at the nock end.

### A Long Bow

**PLEASE** give me details for constructing a long bow, i.e. type of timber to be used, also data on arrows—length, head, position of flight, etc.? (F.C., Plymouth).

AN average long bow is 6 ft. long, made of yew wood, usually in two pieces joined by a double fish joint at the centre of the bow. The cross section is approximately 'D' shaped, with the 'belly' or curved side nearest to the string. The middle 18 ins. should be stiff and resistant, then tapered gradually to the 'horns' in which the string is fixed. The handle is formed by leaving the wood thick in the centre and covering it

### Goldfish Feeding

**WILL** you tell me how to dry ants' eggs (for feeding goldfish), as I find they are fairly dear in the shops. Also I would like to keep some for during the winter months when they are hard to get. (K.H.—Grays).

THE so-called ants' eggs supplied by the dealers for goldfish are specially treated. In this case we do not think it would help you to collect them yourself, as they are of very little nutritive value, unless absolutely fresh. As you require a stock for the winter months, they would soon be worthless as food. You could, however, augment the usual foods that you get from your dealer, by

others such as earthworms chopped up fine (worms can be kept through the cold months in an old cask or barrel filled with loam or leaf-mould and bits of old sacking, with a layer of moss on top, any dead worms being removed periodically); place the tub or other receptacle in a cool place, but where frost cannot reach it; dried shrimp and dried daphnia are other useful standbys. The latter, 'waterfleas', can be raised by the ardent aquarist at home. Rich in vitamins is liver from the butcher, finely minced. It is well to remember that live foods are always superior to dried ones.

### Speed Control for Sewing Machine

**I** WAS thinking of purchasing an electric motor A.C. 1/20th H.P. to use as a drive for a sewing machine, but I do not know how to fix a foot control to it, and would like to know if it is possible to do so, so that a varying of speed can be obtained. (R.S.—Belfast).

THE speed of such a motor as mentioned may be controlled by using a variable resistor in series with it. Bearing in mind the H.P. of the motor, its consumption is probably between ½ and ¾ ampere. A wire-wound power resistor able to carry this current is therefore required. Such resistors may be obtained from some stockists of electrical equipment, but are rather expensive. It should be quite feasible to make up a suitable resistor, using a section of an electric fire element. The slider can be operated by a foot control, a spring serving to return it when pressure is relaxed. Speed can then be controlled at will by the foot, which is the method usually adopted for such machines. The whole installation should be soundly insulated and well made, to avoid intermittent contact and consequent irregular running, and to avoid any danger of mains shocks, such as could arise from touching bare metal parts. The whole control would best be contained in an insulated box, holes being provided for ventilation, since the resistance element will heat somewhat in use.

necessary for larger size rakes.

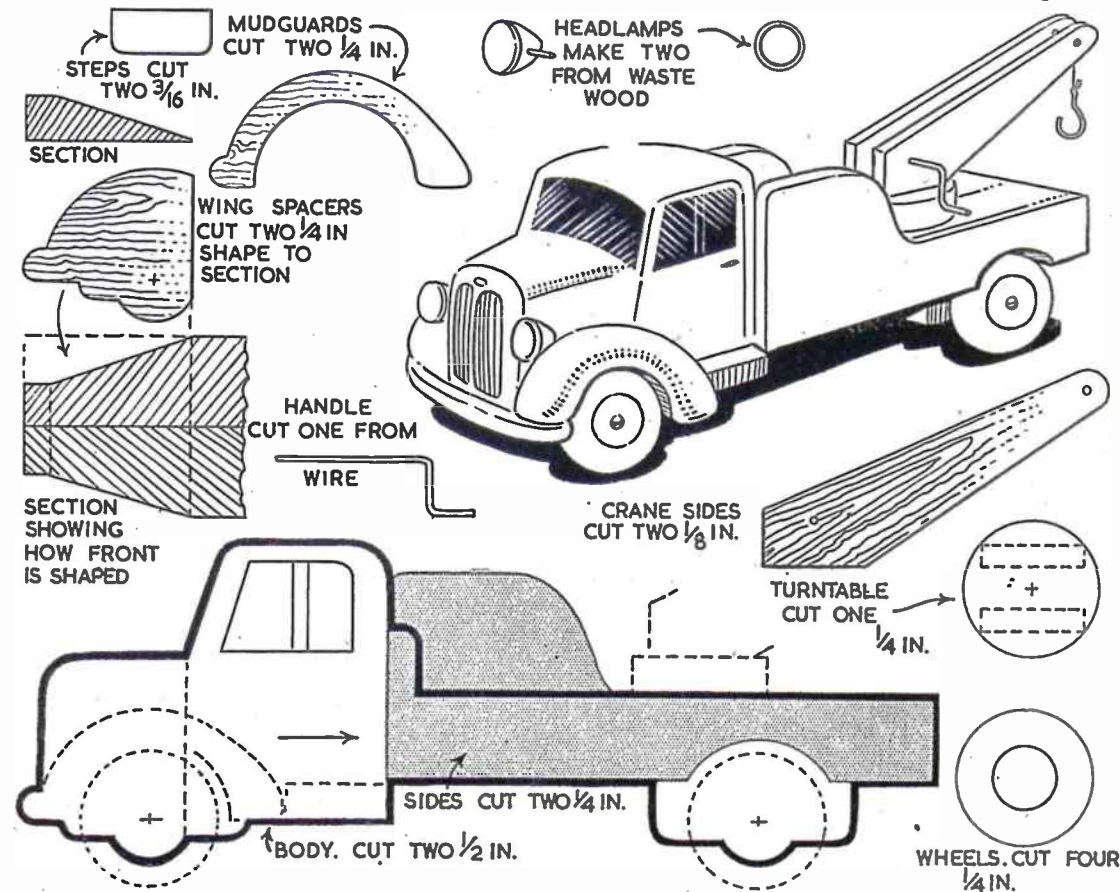
Besides being useful for keeping the lawn tidy and cleaning off moss, this rake may be used for gathering up fallen leaves and litter from garden paths, and during the autumn it is going to be used quite a lot.

The really enthusiastic gardener would probably have a set of two or three rakes with differently spaced prongs and would employ them for raking up stones when preparing a bed for seed sowing.

A coat or two of a good hard-drying paint would be an advantage to prevent the formation of rust when used on a damp lawn. (A.F.T.)

## TOY CAR SERIES

# A Miniature Breakdown Lorry



**A**LTHOUGH the lorry shown here is only just over 5 ins. long, it has a tiny crane that really works.

The construction entails a little shaping, and it is best to do this with a penknife. Cut the two body pieces from ¼ in. wood and glue them together. Place them under suitable weights until dry. Only the front portion is shaped, this being shown full size in the section. When you are tracing the shape for the body, note that you follow the thick black line.

Cut the two wing spacers from ¼ in. wood and fit them on either side of the bonnet. Now glue the mudguards to the wing spacers and round them off as realistically as possible.

The rounded projections on the front of the body, wing spacers and mudguards, will form the bumpers. Clean

them up with glasspaper so that they appear as one whole piece across the front of the lorry.

The sides are cut from ¼ in. wood and are glued on to the sides of the body. For the shape of the sides trace the area coloured grey. If you glance at the picture of the finished thing you will see the shape that is needed. The sides and body together will form a flat deck at the back of the lorry.

The crane consists of a turntable and two sides. Glue the sides to the turntable and put a little spacing block about halfway up between the sides. This block can be cut from waste wood. Pivot the turntable to the back of the lorry in the approximate position shown. Make the winding handle and hook from an odd piece of wire.

The wheels are cut from ¼ in. wood

and are fixed to the body by means of ¼ in. roundheaded screws after the painting is finished.

Choice of colouring is left to the reader, but bear in mind that bright colours are more acceptable to children. The windscreen and side windows are painted black to represent glass, and any other details can be marked on with pencil.

The tyres are painted dark grey and the rest of the wheel the same colour as the lorry itself. If you are good at lettering you might try your hand at painting a firm's name on the side of the lorry.

Will readers who intend making up the lorry in our issue, dated November 12th, please note that the body pieces should be cut from ¼ in. wood, not ½ in. as stated. (M.)

## A Useful Garden Rake

(Continued from page 179)

project approximately 1 in. If the prongs are wanted more rigid a few rows of thin wire may be woven in and out an inch or two from the end as shown in Fig. 4.

Fix the plate on the handle firmly with either a small nut and bolt or a wood screw. The two ends of the tubes can be soldered together to give extra strength if desired.

There is one very important point to remember when fixing the handle. In Fig. 5 it is shown pushed right through the tube until it reaches nearly to the end of the plate. This helps to keep the plate rigid when pressure is applied and prevents a breakage at the narrow neck.

A hole may be drilled in the plate and a screw inserted into the handle near the end, but this is really only

# Make Your Own Fishing Rod

IN the last article we shaped our greenheart and fitted the ferrules and counters. The next step is to finish off the timber in each section with fine glasspaper so that it is quite round and smooth and of even taper. The diameter at the ends of each section must be identical with the internal diameter of the ferrule or counter that fits over it (Fig. 4a). The timber must never be undercut to take the ferrule or counter as in Fig. 4(b). Weakness would result.

While glasspapering off the timber, assemble the rod from time to time to test for balance and action. Make haste slowly here, because if too much is

sides of the rod.

Very often new ferrules when bought seem unduly tight. If you cannot get them apart use a few drops of penetrating oil on them and let them stand for a time. Wipe off all the oil later. Grip the ferrule and counter with two pads of rubber cut from an old cycle inner tube and twist in opposite directions. They should then come apart.

You will have a much better idea of their feel when they are fitted to the timber, and will then probably find that the ferrule and counter are just a firm fit. The counter could be reduced very slightly with very fine emery cloth if necessary, but it is better on the tight

timber, they will require packing out. Do this in the same way as for the loose ferrule described in the last article. If the holes in the corks are not quite large enough they can easily be made bigger by the application of a piece of fine glasspaper wrapped round a pencil and used as a file.

As soon as the glue is dry, the handle can be shaped. The best tool for this, short of a lathe, is a file. The handle meantime should be revolved evenly. The filing should be stopped while the handle is still too large. Finish it off to the desired shape and size with fine glasspaper wrapped round a conveniently-shaped piece of wood.

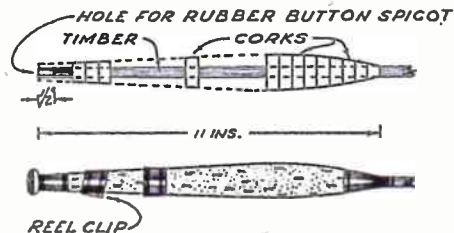


FIG. 5

taken off the mistake cannot be rectified. If the action is too stiff to suit you, use the glasspaper lightly and evenly all round each section until it is just right. Remember the thicker the timber the stiffer the action.

Note also how the rod bends. This can be checked by pressing the point lightly against a cushion and elevating the butt. It should bend evenly and progressively along its length from butt to point. Too flat an arc at any particular spot means that the timber there could stand a little more glasspapering. Too sharp an arc anywhere means that too much has been taken off. Do not allow this to happen by testing for bending very frequently during the glasspapering.

When the timber has been properly finished off, assemble the rod again and run your eye along it to check for straightness. It may not be perfectly straight due to small errors in fitting the ferrules or small irregularities in the timber. This can be rectified by twisting the joints so that they take up slightly different positions relative to one another. By this means these irregularities can be offset, one against the other, and balanced out. Mark the correct positions of assembly on the timber near the ferrules. Mark also the top and under

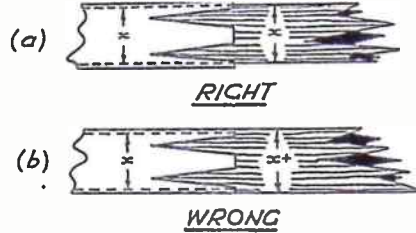


FIG. 4

side to allow for wear.

Now comes the handle. This is made from solid corks bored out to the diameter of the greenheart over which they are to be slipped. The handle (Fig. 5) will be 11 ins. long. Fine quality bored corks as sold for the purpose are  $\frac{3}{16}$  in. in depth. Therefore obtain two dozen, bored out to  $\frac{3}{16}$  in. and with an external diameter of  $1\frac{1}{16}$  ins. Do not use low-grade corks, they will spoil the look of your rod.

### Reel Fittings

Universal reel fittings, size 13, will have to be purchased as well, as will also a taper shoulder collar, size 10, a screw taper butt cap, size 12, and a  $\frac{3}{16}$  in. screwed rubber button.

All these, with the exception, of course, of the rubber button, can be obtained in either bronzed brass or duralumin.

Smear the timber over which the corks are going to be pushed with waterproof or casein-type glue. Push on the corks from the thin end while the glue is still wet, and wipe off any excess that is squeezed out between them. Make sure that they are firmly pushed home. The first cork on should go to the very end of the timber. Leave the glue to dry for twenty-four hours.

If the corks are not a tight fit on the

In fact, if you are at all worried about making a mistake use glasspaper all the time. It will not take very much longer.

To obtain the smoothest finish to the cork cut a sheet of the finest glasspaper into long strips of about 2 ins. wide. Work it lightly backwards and forwards across the handle, meanwhile rotating it evenly. The glasspapering may show up slight flaws in the cork. If this happens make a paste of waterproof glue and cork fillings and fill the cavities with it. When dry smooth over with the finest glasspaper.

While the handle is being shaped, keep testing the fit of the reel fittings, because if too much cork is taken off they will be slack and useless. The rear component should be a tight fit over the cork, and the plain tapered ring should be free to slide easily, but not slackly, up the handle to a point  $3\frac{1}{2}$  ins. above the rear component.

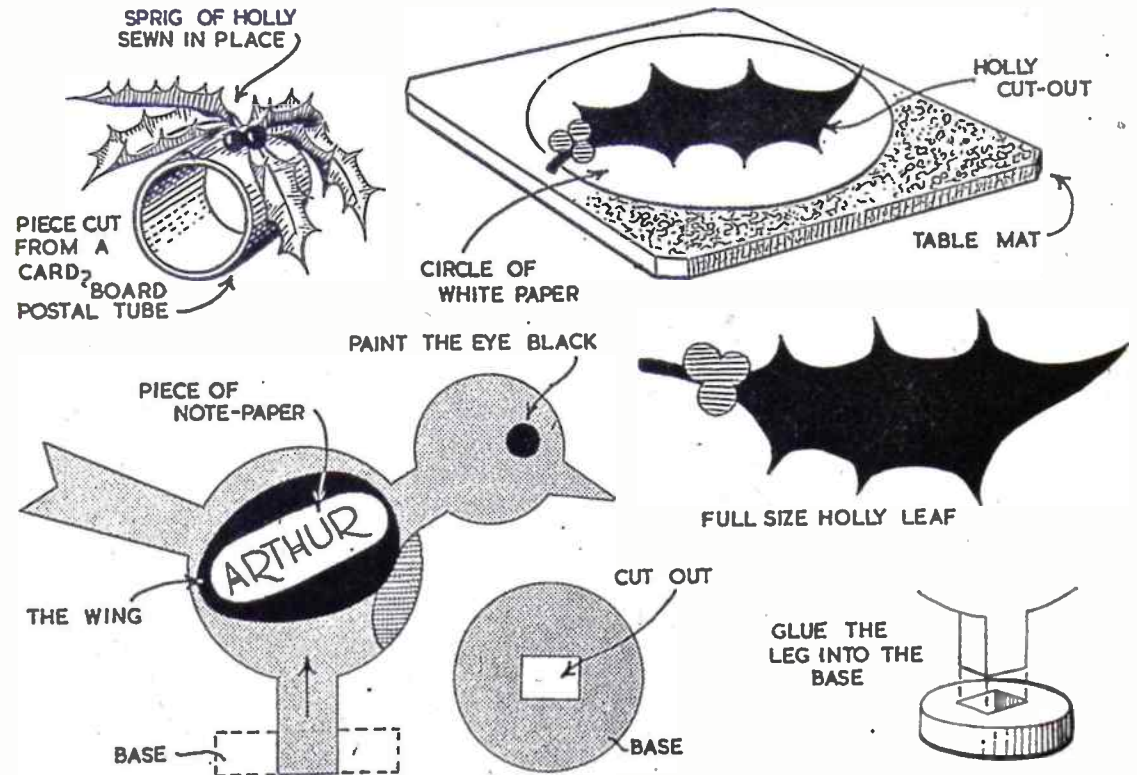
That means, of course, that the rear half of the handle should be almost parallel, while the front half should swell somewhat to make a good hand grip.

In the next article we will complete the rod.

(W.G.C.M.)

(Part 3 of this article, due soon, completes the series.)

# FOR YOUR CHRISTMAS PARTY TABLE DECORATIONS



GIVE the children some green paper, a few sprigs of holly, a needle and thread, etc., and they can make some of these novelties for their own Christmas party.

### Serviette Rings

The little serviette rings are made from postal tubes cut up into  $1\frac{1}{2}$  in. lengths with a sharp penknife. Cover them with silver or gummied paper and then prick two holes fairly close together through the cardboard.

Select a small sprig of holly with a few berries on it, and sew in place, pushing the needle through the holes already made. Paper serviettes can be rolled neatly and pushed through the rings.

The table mats are of a temporary nature, and any existing mats that you use daily will do. Cut circles of white or coloured paper, and to these stick holly

leaves cut from green gummed paper. The berries are cut from red paper and stuck in place as shown. To stick the whole thing to the mat use ordinary rubber solution such as you would use for mending a puncture. Smear it over the back of the circle with your finger and, before it has time to become tacky, press it in position on the mat.

When the party is over, the paper circle can be pulled off quite easily without damaging the mat. Any rubber solution left on can be taken off with a pencil eraser.

### Amusing Birds

The little birds are cut from  $\frac{3}{16}$  in. plywood or hardwood. They can stand by each place to tell the guests where to sit.

The shapes are full size, so all you need do is to trace and transfer to the wood in the usual way. The base is also

cut from  $\frac{3}{16}$  in. wood and the leg is glued in position.

Cut the wings from  $\frac{3}{16}$  in. wood or card and glue one each side of the body. The bird should be painted brown, with a patch of red on the breast. A blob of black paint will represent the eye. To finish off, cut strips of paper and paint the names neatly, before gluing the paper to the wing. (M.p.)

TELL YOUR  
FRIENDS ABOUT  
THE USEFUL THINGS  
IN  
'HOBBIES WEEKLY'

# Don't Let Your Camera Lie Idle—There's Work For It In December

WAY back during those happy days of summer it was my privilege to spend three weeks' holiday at a well known guest house by the seaside and to participate in the rambles, excursions and other jolly occasions specially prepared by the officials for the benefit and enjoyment of the sixty to seventy guests. In this way, being an ardent photographer myself, I very quickly became friendly with those who were anxious to get some records of the holiday by means of their cameras, and it was surprising to note what a number were using photography for the first time.

It so happened that I had with me quite a batch of enlarged prints of many



Interior of a London Church. High speed film, f 11, 30 seconds exposure

of the beauty spots of the neighbourhood, having been there before, and, with these to illustrate, I was persuaded to give a talk one evening to the guests. It was gratifying to note that it was not only the amateurs who were interested.

During the lecture and the answering of questions I apparently dwelt with some emphasis on the importance of keeping the camera clicking at all times of the year, for the following question was suddenly fired at me by one member, who seemed to be backed by several others: 'What on earth can one find to take in November, December and January?'

It did not take many minutes to get those amateurs really enthusiastic on

winter-time photography, and it occurred to me that there must be a very great number of young folk who have the idea that work with the camera is only possible on the fine sunny days of summertime. Possibly the large majority have never given a thought to it at any other time of the year. Therefore it would not be out of place to have a chat, through the medium of an article, with all the readers of *Hobbies Weekly* on this very subject.

## Outdoors Work Limited

Of course, we all know that outdoor exposing during December is limited to the few hours of daylight at the weekends, and they are not always fine

enough, but why must we always feel that the camera is an out-of-doors apparatus? Just as soon as we begin to think about using it indoors, then quite a number of opportunities come to mind, and I want to demonstrate what a simple, pleasurable, job it is to fit up suitable lighting to enable one to blaze away a few more spoils and to get some excellent results that will give pleasure not only to the taker but to a number of friends.

Before getting down to this work it is, of course, necessary to find a substitute for daylight, which means some form of artificial lighting and, as most of us are now using electricity, we need not experience much difficulty in providing very efficient and 'always-to-hand' apparatus in the form of a reflector fitted with a 250 watt lamp and a length of flex reaching to a near-by power switch.

Such a piece can be easily made from a small biscuit tin or similar container having a bright inside surface. It can be either round or square and about 4ins. to 6ins. deep, but not too large otherwise. In other words, it must not be bulky, or it will be clumsy and awkward when in use. In one side cut a round hole of the diameter of an electric bulb holder, and, if you have an old table

lamp, remove the shade from it and in its place put the home-made reflector with the high power bulb. Your artificial light apparatus is then ready for your first exposure.

You are probably wondering what subjects you should concentrate on with such a contrivance? Well let me give you a few and, doubtless, this will bring other subjects to your minds. First there is home or indoor portraiture and you will readily recognise the many different opportunities that this presents, such as father and mother by their fireside, the kiddies and their toys, brother Jim's first home coming after joining the Forces and complete in his uniform, the birthday party, the quiet little rubber of bridge or the game of billiards, the Christmas preparations and the Christmas morning display of presents and cards. All these can be considered under the category of portraiture and there are many others.

There is also the subject of other hobbies and the making of photographic records of such models as fretwork, mechanical devices, cabinet work, stamp collections, drawings and similar occupations.

Some little time ago a lady friend



Useful floodlight arrangement

asked me if I would take a photograph of her collection of jugs. This struck me as something rather out of the ordinary, but when I saw the collection I was not surprised that she wished to have a record. It is extraordinary what some folk collect—books, prints, butterflies, birds, old china. And, of course, the angler must have his 'ever-so-big' specimen in a glass case.



In the park. Note the shadows across the snow

Well, there is a list of items which should be useful to you and now you will want to have a few hints on manipulation. Generally speaking, you will find that a fast, or fairly fast, brand of film is the most suitable, and in the case of portraiture, a fairly large stop is advisable, because no one can stand the glare of a strong light full on their face for any great length of time. But when still subjects are under the eye of the camera, then it is preferable to use a small stop, especially if there is considerable small or fine detail in the stamps, flowers or other items, as with some lenses a small stop does improve and give sharper definition.

## Measure Distances

Be very careful to measure the distance between lens and person or object and ascertain that this is in accordance with that given on the distance scale or register on the camera. This is most essential when working with a non-focusing camera.

Now for that all important question of exposure time. Obviously it is not possible to give any definite factors for calculating this, but one or two attempts will give you a very good idea. It must be remembered that strong reflection or

concentration of the light on the subject means less exposure than if the subject is dark, or even if the general decorations of the room are dark. Some subjects will only require half a second at f8 using a fast film such as H.P.3, but on the other hand, two seconds may not be too much for other objects. A close-up portrait, where you are working with, perhaps, only a distance of about 3ft. between the lens and the person, requires more exposure than one would think, so, again, it is best to try out with a couple of seconds and the open stop.

Now it is time to give a little thought to subjects outside the home, and I would suggest to those who have never tried taking interiors of buildings that a December fine day is really a splendid opportunity. If your parish church is a fine old building with points of architectural interest, why not get permission from the Vicar to set up the camera one Saturday morning? A first attempt usually means the nave and chancel or the latter only. Focus with the largest stop and make quite sure that the camera is absolutely square, ensuring that the pillars and arches are not 'falling in'. Do not trouble about having too much foreground of pews and aisle, sometimes this is unavoidable, and it can be reduced and cut down in the printing.

When all is ready, stop down to f11 or f16 and be prepared to give five, ten or even twenty minutes exposure. Everything depends upon the amount of light coming through the windows. With

such a long exposure you need not bother if there happens to be one or two visitors walking about, they will not come into the picture unless, of course, they stand still for a time right in your line of fire. This would necessitate replacing the cap on the lens or closing the shutter for such time as they remain and then re-exposing.

Now don't forget that at Christmas time your church will probably be very beautifully decorated and the experiment you make before the day will stand you in good stead for another effort on this occasion.

## Street Scenes

The mention of Christmas reminds me that the shops and market places of most towns and suburbs, for at least a week before the holiday, are all agog with a different form of excitement than that usually prevailing. There are huge bunches of holly and mistletoe, also Christmas trees, and grand displays of fruit and poultry, and most shop windows are attractively decorated. All this, combined with the general happiness of the shoppers, indicates the possibility of some good street scenes.

Do not leave it till late afternoon. You have got to be up and doing in the morning when the light is good enough for 'snaps'. Exposure? Well, a very fast film is advisable and also a fast time, so let us suggest  $\frac{1}{25}$ th at f8 or, if the sun happens to be shining on that part of the street, make it  $\frac{1}{100}$ th. This should overcome any movements.

(Continued on page 187)



'You've a fortune in your hand!' Taken with ordinary lighting of 120 watts supplemented by special lamp of 250 watts. Fast film, f8, 1 second

# DESIGNING AND BUILDING MODEL RAILWAYS

By E. F. Carter

RAILWAY coaches have, during the past century, passed through many modifications of design, and the many types of vehicles in use today are the direct results of developments carried out by the railway companies with a view to meeting the exigencies of the services. So it is that we have different types of passenger vehicles for suburban and long-distance working, each with different seating accommodation and compartment spacing.

### 'Box' Construction

Coachbuilding in 'O' and 'OO' gauge model forms is best carried out by a 'box' construction comprised of a floor, two sides, a roof and two ends; the 'underframes' carrying the wheels or

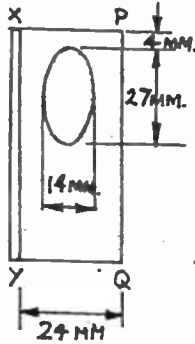


Fig. 1

bogie-pins being attached to the wooden floor on its underside by small wood-screws. If desired, however, metal coach underframes may be first built, and the wooden or card body attached thereto at two or more convenient points; but this latter method is not to be recommended to the beginner, who in all probability will be purchasing his bogies ready-made, and will wish to screw them simply to the floor of the coach super-structure.

Very broadly speaking, the constructional principles used in small scale coach construction depend entirely upon the class of materials used, whether or not a wooden floor is used. For example, if a metal-built underframing is to be made, then the floor of the superstructure can be made considerably thinner without detracting from the strength of the finished vehicle. In fact, the whole construction of the upperworks can be built of a lighter character, because the true strength of a vehicle so made lies

in the underframe as it does in real railway coaches.

If, on the other hand, the beginner decides to adopt the wise course of building an all wood, or a wood and card body as his first attempt, the floor should definitely consist of 1/4 in. hardwood ('O') or 1/8 in. for 'OO' scale. This will form a 'strong foundation upon which to build the whole vehicle. The coachwork can be mounted above it and the bogie-frames pivoted to its underside; where also are located the truss-rod accumulator boxes (or gas cylinders) and other 'running-gear' details.

Supposing a vehicle is required in which a still greater amount of construction latitude—and simplicity—is required, a Pullman car, with its straight sides and inter-regional working is to be recommended, and the description of the construction of such a vehicle in 'O' gauge will now be given.

The accompanying diagrams are partly to scale and partly 'free-lance', so that the whole job will not be unduly difficult. Super-detail and true-scale work will follow as greater dexterity is acquired.

### Tools

As for tools, the few that will be needed will not cost very much, even in these expensive days. A small panel saw, such as can be purchased from the Publishers, together with a light hammer and a small screwdriver make up the small total, whilst a pair of scissors and a pair of tweezers of the 'eyebrow' variety can be 'procured' from the feminine side of the household. More tools are, of course, an added advantage, but they are not essential.

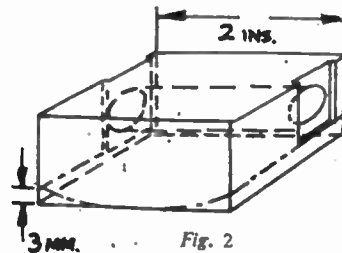


Fig. 2

Now as to materials. About one foot of 2in. by 1in. planed deal, two feet of 2 1/2 in. by 1/2 in. planed deal, and a few bits of 1/4 in. by 1/2 in. stripwood, together with a 2 ft. by 1ft. piece of hardwood veneer will be required.

Begin by making the ends of the body by cutting off two pieces 50mms. long from the 2in. by 1in. deal, making quite certain that they are square at both ends. Then mark on the edge of each end

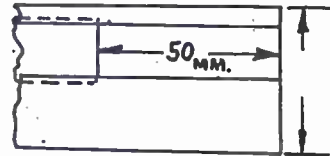


Fig. 3

the oval windows and the doors, as shown in Fig. 1. The line X-Y must also be marked in.

The windows can be fretted out, or may be roughly pierced with a brace and half-inch bit. If the latter method is used, do not attempt to bore through in one go, but drill half-way through, turn over and starting from the other side, meet in the middle, afterwards paring away the remaining oval with a sharp penknife.

Next mark and cut out as shown in Fig. 2, slightly larger all round the window and about 1mm. deep—not more; following this by marking out and shaving off the 'bow-ends' which must be made on the side P-Q (Fig. 1).

### The Sides

For the sides, cut off two pieces of the 1/4 in. by 1/2 in. stripwood, 350 mms. long and with the aid of a ruler and a piece of broken glass (held in a piece of cardboard for the protection of fingers and thumb) cut channels along the outside edges about 1 1/2 mms. from the edges. Then glue the edges of two pieces of celluloid (cut from old photographic film) 250mms. long by a fraction over one inch wide, and slide them into the grooves until the ends of the celluloid are 50mms. from the ends of the wooden sides. (See Fig. 3). As a check, when the windows are in position the overall height of each of the sides should be 56mms. Now lay the glazed sides on a flat surface for the glue to set hard.

Next mark off four pieces of 1/4 in. by 50mms. long and gluing their edges,

slide them into the spaces at the ends of the celluloid, and on the inside stick 1/4 in. by 1/2 in. stripwood supports 50mms. long, flush with the top of each of the sides.

Now take a sheet of veneer, and cut two strips 25mms. long parallel with the grain, afterwards cutting each strip into pieces 25mms. long; thus forming a number of little squares to fill the window spaces. They can be glued on one side and fitted into their correct positions along the glasses. (See Fig. 4).

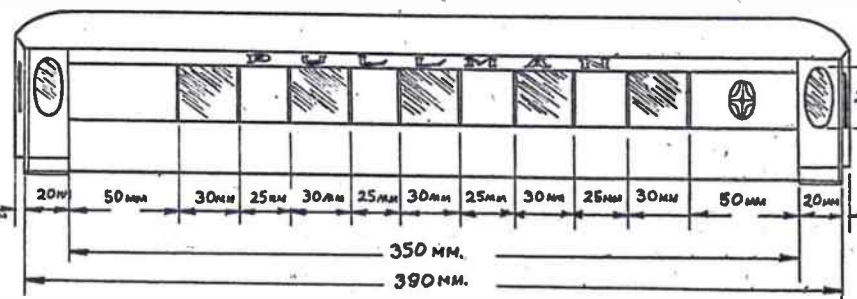


Fig. 4

When the assembled sides are hard set, paste a piece of fine glasspaper on to a flat piece of board, and taking the sides one by one in the hand, rub their outside surfaces with a circular motion on the glasspaper until a perfectly smooth surface has been produced on each.

Next take the ends of the vehicle again, and cut accurately pieces of veneer to fit the recesses shown in Fig. 2, and also cut a piece of celluloid and glue it to the underside of the veneer, thus making up the 1mm. deep recess already cut. Glue the whole assembly into this slot.

### Assembly

Now to assemble the two sides and the two ends. Place the two ends on their sides and glue and pin with 1/4 in. pins

(with their heads previously nipped off to stop splitting) so that the ends of the sides come flush with the scribed lines X-Y (Fig. 1). As there is but very little over-lap at this joint, glue in pieces of 1/4 in. by 1/2 in. as corner supports for additional strength. When set, continue with each side in turn.

The roof is made solid for simplicity. From the 2 1/2 in. by 1/2 in. deal, cut off a piece 396mms. long and on each end of it mark out the shape of the roof (similar in shape to that of a mushroom),

roughly dry, rub off the ends to a nice 'bull-nose' shape, whilst at the same time tapering off towards each end from the point where the vestibule joins the body proper. Continue each 'bow-end' upwards by shaving off the corners of the roof-ends. This combination of shaping will finally give the correct end profile in each direction.

Note that the sides hang down lower than the ends. This is correct. It allows the floor to be dropped in, and for this part a 390mms. long piece of 1/4 in. thick

fine-grained wood 2ins. wide will be required. This piece should be carefully whittled to fit snugly, when it may be dropped into place and secured in position (with its ends coinciding with the end corners of the vehicle) by means of fine pins.

### Buffer Beams

Now cut two strips of veneer and glue them on to the ends of the floor for buffer-beams, and also four small strips for uprights at the corners of the coach. Stick on four steps to come out flush with the sides and level with the ends. Handrails, ventilators, knobs and corridor connections can be purchased if desired and fitted.

In the next article the painting and lining of the Pullman will be described. (E.F.C.)

**CORRECTION**  
In the article by E. F. Carter in our issue of August 20th a 'Piping Table' was given. We have since learned, however, that, due to a fortuitous moving of decimal points during the transcription of pencilled workings to a finished typescript, the table is in error. It should read as given here:—

	S.W.G. No.
1in.	24
1 1/2 ins.	22
1 1/4 ins.	19
1 1/8 ins.	19
2ins.	18
2 1/2 ins.	17
3 ins.	17
3 1/2 ins.	17

\* Use three coats of paint.

## There's Work For Your Camera in December.

(Continued from page 185)

Those readers who live near an open market should certainly not miss the Christmas displays. If you watch your chance, it is possible to get some charming, and really pictorial scenes. These are subjects that will always appeal and serve as excellent Christmas Cards in the future.

To finish, let me remind you that the woods and parks, even in December, must not be neglected. With a spot of sunshine among the leafless trees you can often be rewarded with a delightful

study or two, and if it so happens that there is a slight fall of snow one night, then it is in the parks and open spaces where you should go with the camera, unless you can get quickly into the more open country where there is less chance of the snow being disturbed.

I must, however, give my usual warning. Do not attempt a snow scene if there is no sun. The pictorial charm in snowscapes is really due to the effect of the sun picking out bright patches or throwing shadows. Usually, when snow

is about, the sky is very dead, but watch when the sun breaks through.

Of course, exposure is short because of the reflection from the snow, but if there are heavy dark trees in the foreground, then these must most certainly be taken into account and f8 or f11 with 1/25th using H.P.3 film will be somewhere about right.

In the paragraph on indoor portraiture I mentioned a distance of only 3ft. between the camera and sitter. Not all cameras are adapted for such 'close-ups', and the majority of beginners' apparatus would require a supplementary lens for this work. These do not cost much and are easily fitted. (J.J.C.)

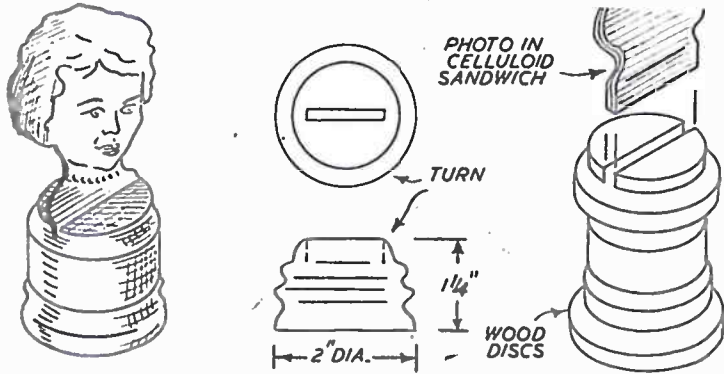


# Personalised Gift Items

A FAMILY photograph often makes an acceptable gift item. That is one of the reasons why the 'photograph' Christmas card has become so popular. This idea expands on the 'family photo' idea and adds a further personal touch.

The photographs required are head and shoulder pictures of various members of the family. These want to be of fairly reasonable size, say, about 2ins. or 2½ins. tall when cut out, and good sharp prints. Cut the photograph out completely to eliminate all background and lay on a piece of thin celluloid. Now trace a similar outline of the celluloid, about ¼in. bigger all round and cut out this celluloid pattern with scissors. With this as a guide, cut another identical piece of celluloid. Coat around the edges with balsa cement or acetone, lay the photograph in place and then the second piece of celluloid, so that the three pieces make a 'sandwich' with the photograph in the middle. This is your mounted photograph.

This photographic cut-out is now set in a suitable base, shaped after the style of a plinth. If you have a wood turning lathe it will be a simple matter to turn up a suitable plinth from good straight grained stock, preferably about 2ins. in diameter. You can, however, produce almost as good results with no more elaborate tools than a fretsaw, a sharp



knife and plenty of glasspaper. To build up a suitable plinth, cut a number of circular discs of different diameter from wood about ¼in. thick. Glue all these discs together carefully and, when set, carve and smooth down with glasspaper to final shape. The method should be quite clear from the sketches.

Whichever type of construction is used, the completed plinth is stained and polished before being slotted to take the photo insert in the top. This is the last job of all, gluing in place carefully with balsa cement. (R.H.W.)

# Make Your Own Micrometer

(Continued from page 188)

thousandths of an inch, 25 divisions will be needed. You may get an instrument maker to mark out and engrave the knob similar to Fig. 2, but you can save this expense by using a knurled knob similar to those used for radio terminals.

It should be quite easy to find one with 50 or perhaps 75 divisions in which case you would be able to measure to the two-thousandth and three-thousandth of an inch respectively.

Other numbers of knurls would require more calculations but can be used if it is impossible to get a 25 or a multiple of it. For instance, a 40 would give 1,600 to the inch (the number of threads on the screw—40 to the inch, multiplied by the number of knurls—40) and to measure ¼in. you will need 200 divisions.

The knob shown in Fig. 3 has 50 knurls and is marked out on the side into 25 equal spaces which you can carefully scratch with a needle. A small gear wheel with 25 or 50 teeth can be used if you fail to get a knurled knob but although quite satisfactory it would not look so nice on the instrument.

The scale must now be made and fixed, which will complete the micrometer. A piece of stiff brass is best for this as it can be marked out quite

easily as shown in Fig. 4. Two small holes are drilled on the left-hand side to fix it securely to the magnet with small screws or even rivets.

A piece of paper can be stuck on if any difficulty is experienced in marking the brass and it will answer just as well. Measure off one inch and then divide this into 10, marking it from 0 to 10 as shown. Each of these divisions is again split up into 4 thus making 40 to the inch which corresponds to the number of threads on the screw. One complete turn of the knob will therefore measure 1/40th of an inch.

Fix the scale very firmly on to the side of the magnet so that it just clears the knurled knob, but the closer it is to this the better and more accurate will the reading be. Two well fitting screws will do the job nicely or two or three small rivets can be used.

Before adjusting the instrument, see that the long screw with the knurled knob does not move in its tapped hole too easily and wobble about, as this will seriously affect the accuracy. To correct such a fault cut a slot down the end of the magnet right through to the tapped hole as shown in Fig. 5, and gently close the two pieces, thus making the hole slightly smaller.

To adjust the micrometer, first screw in the knob so that the 0 on the scale corresponds with the 0 on the reading edge of the knob. Now screw up the short adjustment screw in the other side of the magnet until the two ends just touch and then secure this with the lock nut.

Remember that this is a delicate precision instrument and it should not be knocked about or dropped, and also that it should not be strained by using force when screwing in the knob.

To those readers who have never handled a micrometer, a word or two on how to read it correctly may be helpful. Each of the 25 divisions on the knurled knob represent one-thousandth of an inch, 10 of them would therefore be one hundredth and 40 or 4 complete turns of the knob would be one-tenth of an inch. To work out the setting for ¼in., you divide 8 into 1,000 which gives 125 (or 1/25 of an inch); therefore 5 complete turns (of 25 each) of the knob will be just right.

A micrometer can be built up to measure other scales if wanted. For instance, the French Metric system can be very easily made. The British Association screw thread for size 0 has 25.4 to the inch, which means that they are just one millimetre apart.

One final word—take care of your micrometer when you have finished it and make a box to keep it in. (A.F.T.)

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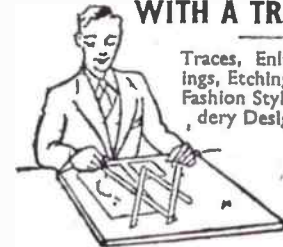
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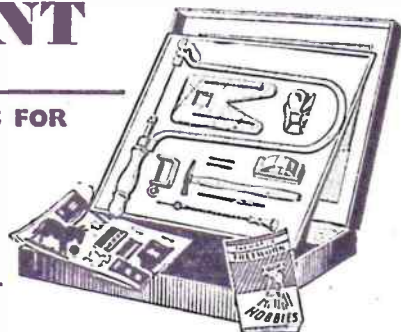


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