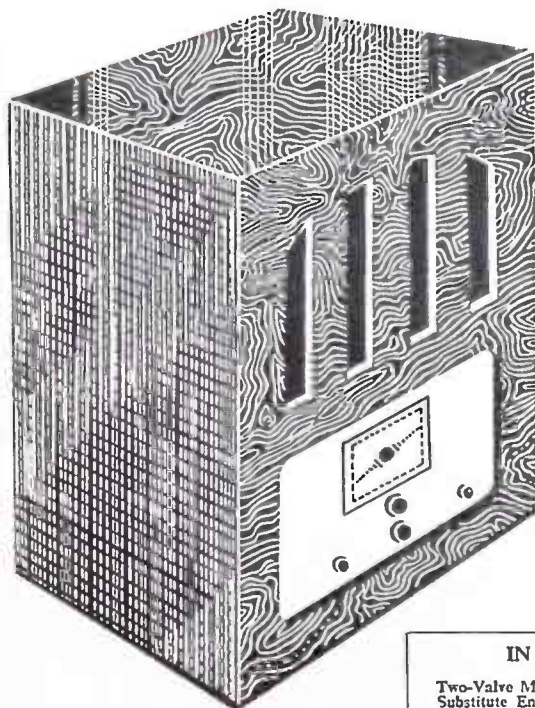


Full of
Instructions
for Articles
YOU
can make

VOL. 115

NUMBER 2983



Build your own
**TWO-VALVE
MAINS RADIO**

FOR D.C.
OR
'UNIVERSAL'
OPERATION

Specially
designed for
Hobbies by
F. G. Rayer

The number of components required is comparatively small. Ample loud-speaker volume can be obtained on those stations which are best received in the locality, with an average aerial. In many areas satisfactory volume would be obtained with a small indoor aerial. With a good outdoor aerial, a moderate number of the more powerful foreign stations can be received, when conditions are good. Constructors who have employed 2-valve battery-operated receivers will find that volume with the mains-type receiver is vastly superior.

Components Required

With a circuit of this type there is great latitude in the components which may be used, and in many cases parts to hand may be employed.

Condenser C1 is to isolate the aerial, and should be between .0001 and .0005 mfd. About .0002 mfd. is best. C2 is to keep mains voltages from the Earth (if employed) and should be about .05 to .1 mfd. Both these condensers should be good ones of 350 to 500 volts working rating. C3 is the reaction condenser, and can be of .0003 to

SOME areas of the country still have D.C. mains, and readers situated in these localities appear to want a suitable receiver circuit. That described here is suitable for D.C. mains; it can also be used on A.C. mains, if a rectifier is added, as will be explained.

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All correspondence should be addressed to The Editor, Hobbies Weekly, Dereham, Norfolk.

THE MAGAZINE FOR MODELLERS,
HANDYMEN AND HOME CRAFTSMEN



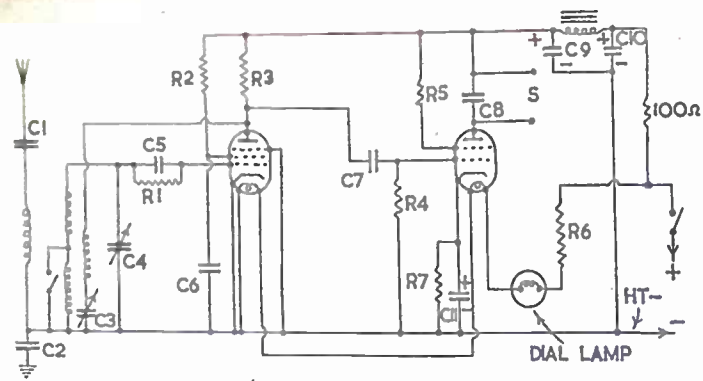


Fig. 1—Circuit of the D.C. Mains Two

·0005 mfd. C4 is for tuning, and should be ·0005 mfd. An air-spaced condenser is best, here, though the reaction-type condenser can be used.

C5 may be from ·0001 to ·0005 mfd.; ·0003 mfd. is best. The leak R1 should be from 1 to 2 megohms. The voltage-dropping resistor R2 should be about 1·5 megohms, and there is not a great deal of latitude permissible here, though up to 2 megohms can be used. R3 is also fairly critical. Here, 750,000 ohms was found to work best, but values from 500,000 ohms (·5 megohm) upwards can be used.

C7 is the coupling condenser, preferably of mica. A capacity of ·01 to ·05 mfd. is best. C6 can be from ·1 to 1 mfd. A paper type condenser is suitable. R4 should be between ·25 and ·5 megohms. R7 must be 440 ohms, for the 25A6 type of valve. C1 can be 25 to 50 mfd.; the latter is best. It may be 25 to 50 volts working.

C8 controls the tone. Values from ·005 to ·05 mfd. can be used, but ·01 mfd. is usual. The larger the capacity, here, the more 'mellow' will reproduction become.

The smoothing condensers C9 and C10 may be 8 to 16 mfd. They may be 250 or 350 V working; preferably the latter. Metal cased or cardboard condensers are suitable; also a dual component which contains two condensers in one case, with a common negative.

The smoothing choke can be any small component intended for this purpose, and capable of carrying up to about 60 mA. Such small smoothing chokes are readily obtainable at low cost. Resistor R5 should be 5,000 ohms.

Resistor R6 is a ·3 amp., 600 ohms mains-dropper. It should have an adjustable clip so that it can be set to a correct value for the mains voltage. The receiver will operate on any voltage between about 80 and 250 V.

A loudspeaker with transformer for mains-type pentode is also required. This may be of any size, but a speaker

with a 6 to 8ins. cone is best for average use. It should be a permanent-magnet type speaker.

The suggested valves are the 6J7 for detector, and 25A6 for output, and these are readily obtainable cheaply. A 6K7 was found to be satisfactory as

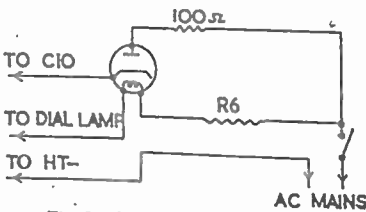


Fig. 2—Rectifier for A.C. Mains

detector. A ·3 amp., 6·3 V dial lamp is also required. If this lamp is omitted, join together the two leads normally going to it.

Two toggle type on-off switches are required. With these, the fixing bush and operating dolly are not electrically in contact with the switch member. With

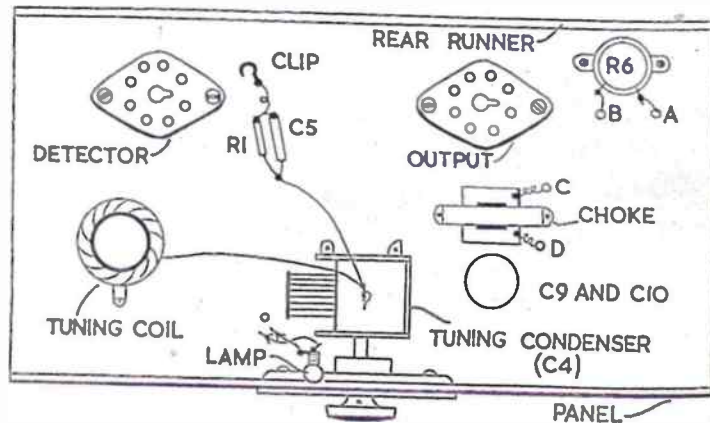


Fig. 3—Chassis layout plan

this type of circuit, this is necessary to avoid shocks. Old type switches such as used in battery sets, and having the fixing bush alive to the terminals, must not be used. If local shops cannot supply suitable switches, these may be obtained from A. F. Bulgin & Co. Ltd., Bye-Pass Road, Barking.

The knob used with the reaction condenser should be one which amply covers the spindle and fixing nut, so that these cannot be touched. (With all D.C. and A.C./D.C. type receivers, no metal parts should be touched unless the receiver is fully disconnected from the mains).

Many tuning dials would be suitable. To give a modern appearance, an 'Airplane' type with stations marked for Long and Medium Waves is recommended. This can be obtained from Stern Radio Ltd., 109 and 115 Fleet Street, E.C.4, if desired. This type of dial may be illuminated from behind. Assume that the metal escutcheon which holds the glass in place is not in electrical contact with the dial drive. It should be bolted or screwed to the wooden panel only, and the bolts or screws should not touch the drive assembly.

Constructional Details

Since wiring is to some extent simplified by having plenty of space, a baseboard 6ins. by 10ins. is suggested. This can be of wood, with a 2in. runner at the back and a panel approximately 10ins. by 7½ins. When the receiver is completed it is inserted in the rear of a cabinet, screws holding the panel in position. The panel itself comes behind a cut-out approximately 6½ins. by 9ins. It is not intended to give constructional details for a cabinet, since this should present no difficulty. Suitable cabinets have been described in past issues.

(Continued on page 218)

How you can make SUBSTITUTE ENLARGER BELLOWS

HORIZONTAL enlargers have, broadly speaking, four main parts, (1) the lamp-house, (2) a frame to hold the negative, (3) an extendable section known as bellows and (4) a front panel which slides in and out and holds the lens (see Fig. A).

All these parts can be readily made by a home craftsman constructing his own enlarger, bar No. 3, the bellows. This section is built up of leatherette, pleated in such a way that it will contract and expand like the middle of a concertina, and the fashioning of satisfactory bellows is really outside the scope of the amateur, as machine cutting, creasing, pressing and sealing are required for good results. A woodworker's version of this essential part can, however, be

made as described here.

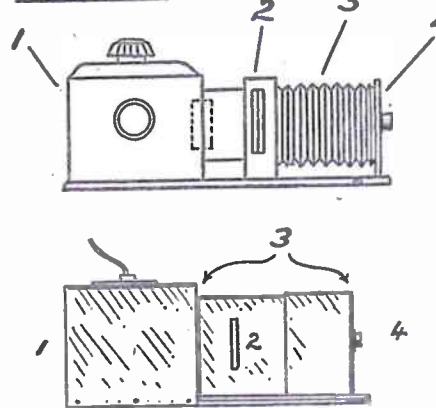
The purpose of the bellows is to give a light-tight passage which is capable of being adjusted to various lengths and still remain light-tight. At one end of the passage is the negative and at the other the lens. By shortening or lengthening the passage the lens can be brought nearer to or taken further from the negative and this movement, together with an adjustment of the distance away of the printing paper, makes it possible to obtain any size of enlargement.

We will assume that you have already constructed a lamp-house and base (or have plans as to how the work can be done) and that the time has come to fit the bellows.

7½ins. by 5½ins., which means that the sides are 7½ins. by 7½ins., top 7½ins. by 5½ins., bottom piece 7½ins. by 4½ins. and the end piece (b) 7½ins. by 5½ins., this having an aperture 4½ins. by 3½ins. taken out of its centre. All the pieces are from ¼in. plywood. The top and base are different sizes, as when assembled the top overlaps the sides, but at the lower edges the sides overlap the base.

The seams in every case are made fast by pushing in a succession of model-makers pins (there is no need to use a hammer). Glue the seams also before final assembling. Full rigidity it will be found is given when the end (b) is in position, this being held by pins going through into the edges of the other four parts. If well put together the

LAYOUT OF HORIZONTAL ENLARGER



HOME CRAFTSMAN'S VERSION

Fig. A

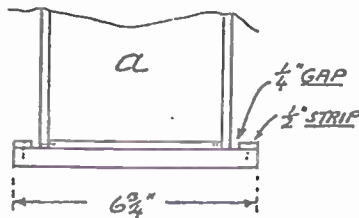
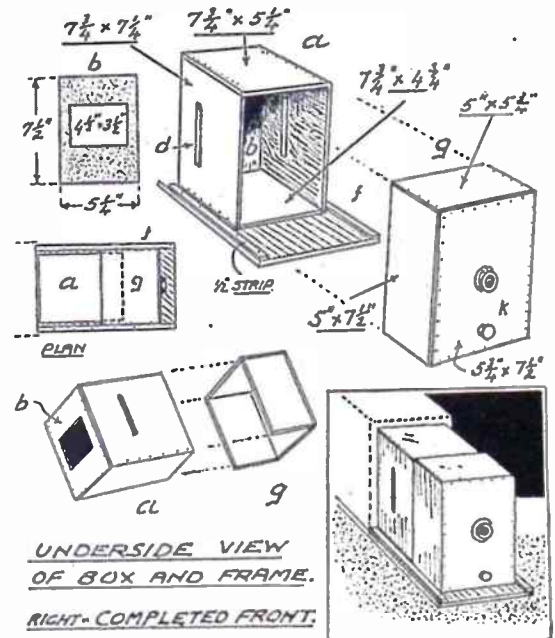


Fig. C—Showing how channels are made either side of the box to take the lower edge of the sliding front



UNDERSIDE VIEW OF BOX AND FRAME.

RIGHT-COMPLETED FRONT.

Fig. B

First make the light open-ended box (a) Fig. B. It is built up of five pieces, viz. two sides, a top, bottom and end-piece. There is some latitude in the size, but the box must well surround the negative in the carrier. A much smaller box, however, can be used for V.P. negatives than for one that has to take, say, 3-plates.

For the standard 3½ins. by 2½ins. films the box should be roughly 7½ins. by

box so formed is very solid and it is secured to the base of the enlarger just in front of the lamp-house. Slots (d) are also put in each side of the box, for as well as being part of the bellows, it, in addition, holds the film carrier, which is a simple sandwich made up of two strips of plywood (¼in. thick) hinged along one edge with tape and with a 3ins. by 2ins. opening taken out of the centre.

(Continued on page 212)

An Instructive Scout Game

IF you are in the Boy Scouts you will have noticed what a lot of fellows cannot go right through the Scout Law correctly? They remember, perhaps, five or six easily enough and then they begin to get 'bumpy'.

Well, here is an interesting game designed especially to help people to get to know the law 'inside out'. You can make it yourself quite easily, and as it is played by six or so persons, it is just the thing to have handy in the patrol corner, where it can be played as a definite exercise in the law, as a test of knowledge, or just for relaxation, when you all feel like a bit of a 'sit round'. The game would also be useful at home to play with scout friends.

To make it, first go to the local printer, and ask him to let you have sixty pieces of card, not too thick, measuring 3ins. by 2ins., or thereabouts. If cut from scrap they will cost only a few pence. You can, of course, if you wish, cut the rectangles yourself from odd pieces of card, but if the printer has prepared them, he will have 'guillotined' the cards together, so that they will all be exactly the same size, which gives a neat appearance and makes them easier to handle.

Next, divide the cards into six bundles of ten, and proceed to write the law on each set, putting one law on each card with its number as shown in the illustration. The shortened form will do when possible, thus: 'A Scout is a friend to all' for No. 4, and 'a Scout is loyal' for No. 2.

Also put a big block letter in the top left-hand corner of each card, all of one set having the same letter. Thus, the first set will be all A's, the second all B's, and so on.

The writing out of sixty cards may

seem a bit tedious, but if you do a few at a time or get help, they will soon get done, and in any case, it is quite worth while spending some little time on making a game that you will get plenty of interest out of later on.

To turn out really neat cards the best thing is to procure some indian ink (i.e. drawing ink) and write or print the laws in this medium. The jet black words against the light-coloured card gives the impression that the cards have been through some sort of printing process and are not 'home made'.

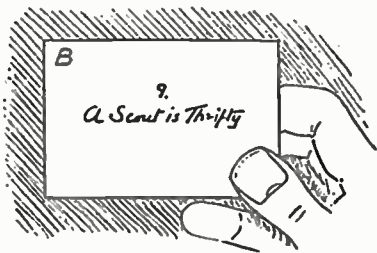
Beyond getting a suitable box in which to keep the sets, the game is now finished, and here is how to play it.

How To Play

First the cards are thoroughly shuffled as in 'Happy Family' or any other game of the same type, and then they are dealt out to the players, going just nicely ten cards to each if there are six persons. The number of players should, if possible, be such that each will get an equal number of cards. Thus four, five and six are suitable numbers, but seven, eight and nine should be avoided, though ten persons would be all right.

The players having received their cards look through them and see how many they have towards a full set of the law, i.e. with the same corner letter, and these they place face downwards on the table in front, the rest they hold in the hand with faces visible.

The cards face down on the table must not be turned over except when the dealer, who is also the umpire or referee for the round, allows a 'general scrutiny'. This he will only do once or twice in a game when everyone seems to be getting rather stuck. Players can then turn the cards over and examine them,



making fresh mental notes of the laws they have and those they require, etc., till the umpire calls 'cards down' when they are again placed face under on the table.

The aim of the game is to get a full set of the law, all with the same left-hand corner letter, by asking (when your turn arrives) other players for the cards you lack, and here's where your knowledge of, and practice in the law comes to the fore. You ask only for one card at a time, and directing your query to one definite person, thus: 'Johnny, have you got 'A Scout is a Friend to all, Set B?'

If the player has got the card you require he hands it over and you can make another request (of any player). If the person you are asking has not got the card you want, he says 'You're unlucky', and then it is his turn to ask for some card he wants and so on till the end.

The first player to make up a complete set of the law under one letter wins the game.

When more than six are playing, one or two players will probably have all their cards 'requested' from them, in which case they drop out as in quartets. (H.A.R.)

In the end of the frame, i.e. the front, the lens is fastened at a position which is level with the negative at the other end of the box.

The 'box bellows' are now complete except for painting inside and out with matt black and fitting the simple knob (k) (obtainable at any handicraft shop) to help easy adjustment of the cover. It helps sliding if the bottom edges of the cover and the channels are rubbed with a little candle grease or graphite.

(H.A.R.)

Watch for 'An All Wood Horizontal Enlarger', due in a forthcoming issue. This article will tell you how to use the bellows described, in making a complete enlarger.

Wood Collecting as a Hobby

POSSIBLY one of the least publicised of all hobbies is that of wood collecting—not bundles of sticks for kindling, but exhibition specimens of wood from all over the world, meticulously filed together with the common name, botanical name and source of origin. Although the Wood Collectors' Society is small in numbers its membership is world wide, with branches in Australia, Canada, Ceylon, Chile, Cuba, Columbia, Ecuador, Germany, Holland, New Zealand, the Philippines and South Africa, as well as the United States and this country.

Qualifications

Qualification for membership is simple. You have to be interested in different types of wood, be prepared to collect specimens and swap them with other members. The collections themselves vary in size. One member reported a total of 5,553, all different, at last counting. And if you think that an awful lot of different wood types, then the fact that there are 100,000 different known species of wood in the world may come as something of a surprise! There is always the odd chance, too, of digging up something different and making this potential total a hundred thousand and one!

In one way or another man has known and appreciated wood from the very earliest times. The British oak on which our Navy founded its tradition. The elegant furniture of the Chippendale period. The art of wood carving as practised by the master craftsmen of Switzerland. Who has not, in boyhood days (and in later years, too) whittled away sticks of wood to produce toys, model boats, model aeroplanes and the like?

Only the few can hope to become craftsmen in wood—but the beauty of wood, and the first rate wooden product, is there for all to see and appreciate. Perhaps in collecting wood specimens from all all over the world—rare woods, beautiful woods, unusual woods—or even common or everyday specimens—the hobbyist is, in part, paying tribute to the service this natural material has given.

At the same time, wood collecting is not just a hobby. Information gleaned on rare woods may be passed on to others, who reciprocate, to the mutual benefit of all concerned. In most countries growing timber is now regarded as a natural asset and subject to strict control. Many wood collectors work closely with government in-

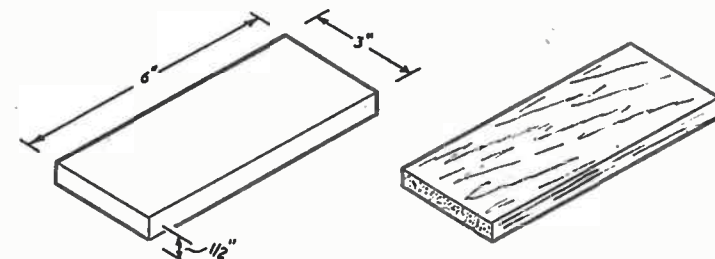
spectors and government departments in collating data, or adding to their collection of specimens. Even the highest of authorities will admit that there is still a lot they do not know about various trees.

Long before the Wood Collectors' Society was formed, lone hand enthusiasts had collected wood specimens. The Society was eventually formed by a nucleus of these enthusiasts as a non-profit organisation for the mutual interest of scientists, botanists, technologists, collectors and craftsmen. The date, April 7th, 1948.

Membership has grown steadily ever

for further specimens not in the original collection.

In this country the activity of would-be collectors in the same sphere is somewhat more limited. There are not the numbers of wild trees of the right type and size available to make it possible to collect specimens in this manner. A useful stand-by, at least for the common or garden wood specimens, is the local timber yard. Other, rarer specimens can then be negotiated for with members in a more fortunate position. To be a wood collector does not mean that you have to start by cutting up trees. With the necessary cash



Standard size of a specimen

since. Professors of botany, experts in timber technology, foresters, teachers, carpenters, wood carvers and just plain collectors find a mutual interest in exchanging their specimens and enlarging their files. A number of members have a definite professional interest in wood—with others the interest is purely amateur.

Standard Size

The actual collection of wood specimens is not all that easy. According to the Society's rules each specimen must be of standard size—6ins. long by 3ins. wide and 1/2in. thick. Enthusiastic members collect original specimens 'in the field'. On rambles or searches they come across specimen trees. Permission from the owner having been sought, the specimen tree is sawn down and cut up into suitable logs. If the tree is a large one, then removal of a single branch will be sufficient.

The rough specimens are then taken back to the workshop. Here, with the aid of a circular saw, the logs are sliced up into standard specimen sizes. To be of value these specimens must be free from knots, shakes or other faults. One of the batch of new specimens goes into the collection. The others are available for trade with other collectors

behind you, you could, if you wished, build up a large collection operating from the very centre of a large city—and without ever going near a whole growing tree! But it is far more satisfying to be able to collect at least a few specimens first hand.

Many rare specimens have been collected—or rather retrieved—from most obscure places. Little known tropical species have arrived as dunnage in ships. A chunk of rare Indian wood was once discovered acting as a temporary support in a structure. Further 'gems' may be discovered in the cellar or the junk yard.

How Little We Know

Until one starts collecting it is difficult to realise just how little the average person knows about wood. The enthusiastic wood collector labels his specimens with such completeness that his files become virtual encyclopaedias of information on timber. Some woods may have a technical interest, others an historic association.

Not all the wood collected is turned into flat 'wafers' or specimens. Many of the collectors are wood carvers as well and whittle ornaments and designs from small billets left over after preparing

(Continued on page 214)

Substitute Enlarger Bellows

(Continued from page 211)

Now at 1/4in. from both bottom edges of the box secure to the base the strips (f), which will leave a 1/4in. wide channel between the two woods (Fig. C). Also build the cover (g). This has to sit over the box (a). It has no bottom piece, so when fitted over (a) the lower edges of its sides rest, and will move easily along, the 1/4in. channels formed by the strips.

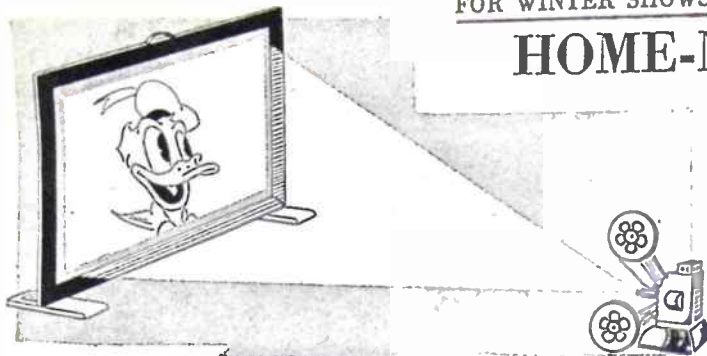
This cover will be made from the existing dimensions of the box, but if the measurements just given are being used, then the top will be 5 1/2ins. wide

and 5ins. deep, the sides 5ins. by 7 1/2ins. and the front 5 1/2ins. by 7 1/2ins. Strips are again employed to secure the seams.

Without a base there may be a little 'give' at the lower edges of the side pieces, but this does not matter, as these edges ride in the channels and so are held quite firmly.

The fitting of this outer frame should just be comfortable, so that it will slide nicely over the box. When together it will be found that the assemblage is perfectly light-tight no matter what the position of the two sections.

HOME-MADE CINE SCREEN



FOR cine or film strip projection in a small room, only a small screen is necessary, and a highly efficient one can be made quickly for practically nothing.

Main Requirement

A large picture frame is the main item, and a sheet of 'greaseproof' paper makes the screen material. Strong gummed paper strip fastens the paper to the frame, and finally feet are needed to allow the frame to stand upright. The frame could be used without feet if it was hung upon or leaned against a wall.

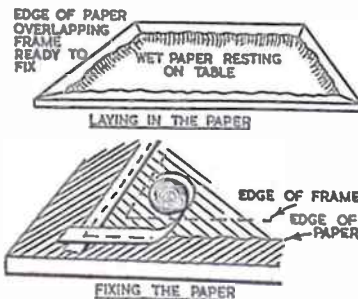
The size of your projected picture will indicate the size of frame required, and this frame must be solidly constructed, the wood at least 2ins. wide, and overall dimensions about 2ft. by 1½ft.

Clean The Frame

See that the back of the frame is glasspapered clean, and the front, if it is

to be painted later, free from dirt and grease.

A sheet of greaseproof paper is cut to the exact size of the hole in the frame, and thoroughly damped. The paper expands considerably with the dampness, and it is placed over the back of the frame so that the centre portion of



the paper will sag on to the table while the edges overlap the edge of the frame.

Moisten the gummed strip thoroughly, and lay it on the back of the frame so that half the width of the strip adheres to the wet paper and the other half to the wood of the frame.

Dry Slowly

The frame, with its burden of flabby and wet paper, can now be raised from the table and allowed to dry slowly in the air. The paper contracts as it dries, and pulls itself flat and taut.

If the frame is not very robustly joined at the corners it may become warped by the pull of the paper, and this pull is also inclined to drag the paper away from the frame unless STRONG gum has been used. For this reason, non-setting adhesives as on surgical and cellulose tapes may not be satisfactory.

The Feet

For the feet, two short lengths of wood of similar size will serve. Planed and bevelled to taste, these are fixed at right-angles to the upright sides of the frame by means of shelf brackets.

A pastel shade of paint over the frame and feet puts the finishing touch to an efficient, easily portable and pleasant-looking screen, equally suitable for front or back projection. (R.L.T.)

penalty is death for offenders—not that the Wood Collectors Society have reported any loss of membership themselves on this account!

Iron wood, or lignum vitae, the hardest and heaviest of all woods sinks in water and has many properties similar to metals. It came into prominence during the war years as a bearing material for the propeller shafts of ocean going vessels. A specimen panel has the weight, and some of the appearance, of a slab of iron. Compare this with another item in a typical collection—a sample of balsa wood which can have a density of less than 5lbs. per cubic foot—much lighter than cork.

History, romance, geography, as well as wood technology itself comes to life in the collection of these wood samples. Small wonder that the members who follow this hobby are so very enthusiastic about it. Perhaps you, too, have an unknown 'rough' specimen of some rare wood knocking about your own home? (R.H.W.)

A 'BUCKING DONKEY' TOY

THIS amusing toy would please any young child and is quite easily made from fretwood, plus a small piece of deal. It can be held in the hand, while thumb or finger, jerking a cord, causes the animal to buck in a life-like manner. A kiddie can amuse itself for hours with the donkey's capers.

Parts

Parts for the donkey are shown in Fig. 1 drawn over 1in. squares. Copy the squares full size on to a sheet of thin white paper; it will then be an easy matter to trace the shapes of the various parts of the animal's anatomy. Do this as accurately as possible. The body part (A) is then traced through carbon paper on to a piece of ½in. thick wood, deal will serve, and be careful that the grain of the wood lies in the direction of the arrows. This applies, of course, to parts (C) and (D) also, and is of

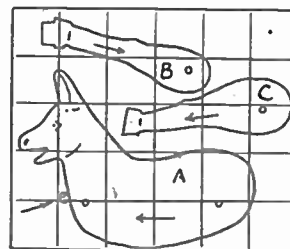


Fig. 1

great importance; neglect perhaps causing a breakage of the parts during use.

In the body part drill small holes with a fretwork drill where shown by the two small circles and where indicated by an arrow drive in a small screw eye to which the operating cord will subsequently be attached. As the toy is intended for the amusement of a kiddie not likely to be too hypercritical about the accuracy of the donkey's shape, the body can now be left as it is, but those who can do a little rough carving, or whittling with a penknife, may improve the body a lot by an exercise of their art.

From ½in. fretwood cut two each of parts (B) and (C), forelegs and back legs respectively. In the forelegs cut the tenons below the feet ½in. long and ½in. deep. Where shown by the small circles drill holes an easy fit for a ½in. round-headed brass screw. These act as the pivots on which the back legs swing. A little rounding of the sharp corners of the legs will improve appearance a good bit here. As a tail is also desirable, a

short length of string could be glued in a hole, bored in a suitable spot at the rear. This should be frayed out a bit and will look not at all bad if stained with black ink.

For the base cut a piece of ½in. fretwood to the dimensions given in Fig. 2. In the centre drill and countersink a hole for a 1in. brass screw. Where shown near the fore end cut out two mortise slots, a full ½in. apart, for the tenons on the forelegs of the donkey. Ensure a tight fit here. Further away saw out the slot seen in the diagram, for the operating cord to pass through.

The Handle

For a handle a 4in. length of round wood rod would serve nicely. Anything from ½in. to 1in. will do, in fact, if a piece can be sawn off an old broomstick, nothing could be better. Failing the wooden rod, cut a length of square section wood, and round off the centre part to make a comfortable grip. Glue the top of it, and screw down the base to it at once. Before the glue is hard, glue the forelegs in their mortises, and see that they stand truly parallel to each other.

When the glue is hard, try the body of the donkey in position between the legs, using a thin wire nail as a pivot. A very free motion is necessary here to allow the body to fall, after being pulled up by the cord, of its own weight. Allowance must be made for the paint which will be applied to the donkey to finish off. All being considered satisfactory, give the whole a good glass-papering and pay attention to the wood

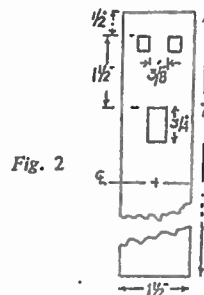


Fig. 2

handle of the base, as no danger must exist of small splinters entering a child's hand when operating the toy.

The body and legs of the donkey will be most appropriately coloured in grey, with details picked out in black paint, with a small brush. Grey could also be used for the handle, or even plain



varnish, but a splash of colour always pleasing to young children, can be given the toy by painting the base a bright green or red. Poster colours are excellent for finishing toys of this description, being bright in colour and easily applied, with a glossy finish if desired by a coat of clear varnish. The inside surfaces of the upper parts of the forelegs could be left plain or the free motion of the body part might otherwise be imperilled.

Making The Toy Work

Knot a short length of twine to the body part, pass through the slot and then tie to a brass curtain ring. See the twine is just the right length for the ring to be easily reached by the thumb or finger of the operator.

With the movement of the body easily effected by jerking the cord, or twine, the rear legs can be fitted on. For these, use the ½in. round-headed brass screws mentioned, one each side. Let the legs swing freely, then the toy can be considered finished for its lucky recipient. (W.J.E.)

TIMELY RESOLUTION

MAKE SURE OF A PROSPEROUS 1953 BY PLACING A REGULAR ORDER FOR 'HOBBIES WEEKLY' WITH YOUR NEWSAGENT.

MATCH MODELLING HINTS



THIS fascinating and growing hobby, like all the rest that we engage in, has its drawbacks and difficulties. Indeed, to be quite frank, is this not part of the delight which we gain from pursuing it? There is a pride in overcoming the difficulties which adds to the joy of achievement once the finished article is in the home.

Peculiarities

Modelling with matches, quite naturally, has its own peculiarities. One hint here is that the modeller should be very careful about the type of matches he uses. All sizes form grist to the mill of endeavour; the thick stout ones, and the very thin ones; all can be used. But the modeller will be well advised to inspect his matches carefully. Some of the foreign makes, he will find, are prepared by special processes which do not allow glue to adhere too well to the wood. There is often a minute film of wax or other material upon them. This is to ensure that they light quickly, and that they burn longer and steadily once they are alight.

But that is not much good to the match modeller. Therefore, a good tip with all matches which one is not sure about, is to clear away this film of preparation before using the matches. Get as large a stock of matches as possible, half fill a saucepan with water and put this on the gas jet. With the matches on top of the water, place a small plate, a metal or enamel type is best, over the saucepan, and slowly bring to the boil. Boil for twenty minutes or half-an-hour, and then remove the matches and place them in the gas oven with a low light to dry them out.

A Steamer

An even better method of ridding your matches of this nuisance is to get a pan of boiling water large enough to allow a colander to fit in the lip. On the bottom of the colander first place a

piece of cloth. Butter muslin is best, if this is obtainable. Tie it round the top edge. Into this open 'bag' the match stalks can be placed, and the steam will easily 'cook' them. A lid placed on the colander is of help, and it should be one large enough to fit fairly closely, yet gradually allow the steam to escape.

Such a home-made steamer will effectively rid the matches of their obnoxious dressing. The sketch will give a clear idea of the arrangement. An old colander without handles is even

CLOTH IN COLANDER

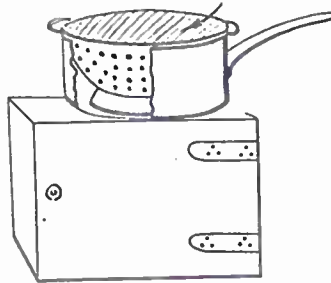


FIG 1

better for the job than the sort shown. If a pan lid is not to hand for the top, an old dinner plate will do quite well, if it does not fit too closely. This is important, as, with the steam, it is liable to fix itself and could cause scalds.

Models

Now for models. Churches are popular, especially if they are provided with built-in music. Or you may wish to model your own parish church, chapel, or particular place of worship. A good money spinner this, if only for the fee you will obtain readily for exhibition at bazaars, and similar functions. Indeed, this should be watched, for during the coming Coronation period, there will be all types of functions, and in the months which follow that great event, models of local places of worship will continue to be fine aids to raising funds both for the Church and the modeller—especially if the models are complete with music.

It is best, we think, to have a concealed place for your 'organ'—the

portable gramophone table which will play two or three records of well known hymns. Make a recess in the side of your model on the side hidden from spectators. If your model is large enough to be exhibited on a table, go to a little more trouble and erect around it a barrier, in the form of posts with fancy ropes so that no one can get too near. Then, with an electrical turntable and pick-up (hand-wound motors are a bit too obvious) you will foster the simple delusion of the organ playing inside your model. And, of course, with records of hymn singing, and a choir modelled within the church, the illusion will be even more effective.

On the side of the model hidden from the onlookers, leave a space underneath the base, dependent upon the size of the gramophone turntable available. This recess might have a flap or hinged door to enclose it, with a vent running inside the model, so that when the turntable operates, the major portion of sound is projected inside the model. This tip not only adds to the illusion, but enables the modeller to ask for higher fees for exhibiting his model.

Other Media

Among match modellers rises the vexed question of what other media apart from matches be employed. Your model is made in the main from matches, but no one would expect you not to employ tube glue or even plastic wood to fill your crevices, so use it.

You ought also to obtain a certificate of workmanship from some local prominent person. The mayor of the town whose town hall you have

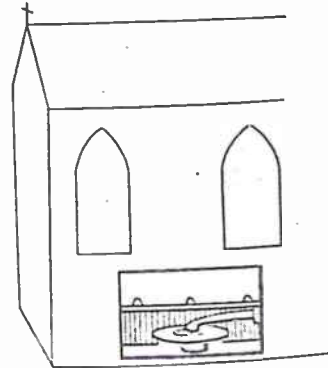


FIG 2

modelled, or the vicar of the church you have so effectively copied in matches. Exhibit such certificate with your model. It adds to the value both of your model and the exhibition. By this means, the idea of other media employed becomes allowable. Your audience realises that, in the main—which is all you intend—your model is made with matches. (H.S.)

EASY WITH A FRETSAW

Make this Novelty Table Basket

FOR what specific purpose this wooden basket is intended is a little difficult to say. Primarily it was produced as an ornament, but its subsequent life has been somewhat varied. It has served a term as a fruit basket for the table and sideboard, for holding nuts at Christmas time, to take letters on the hall table and a host of similar jobs. Quite probably, if you make it, you can think up some entirely new uses. If necessary, vary the proportions to suit different needs.

Construction is started by assembling a simple structure. The two end pieces are cut from 1/4 in. plywood, slotted and drilled as shown in Fig. 1. Frame members required are also shown in this diagram. The basic assembly is then as in Fig. 2, gluing all frame members to the two ends. Note that the main bottom frame member protrudes 1/4 in. from each end. This is subsequently rounded off by glasspapering.

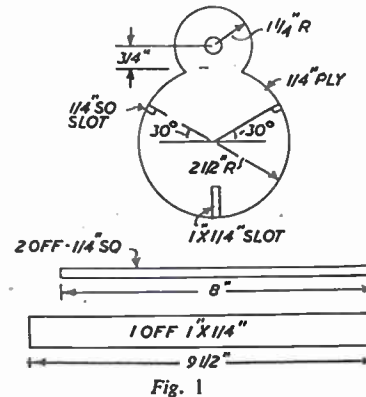


Fig. 1

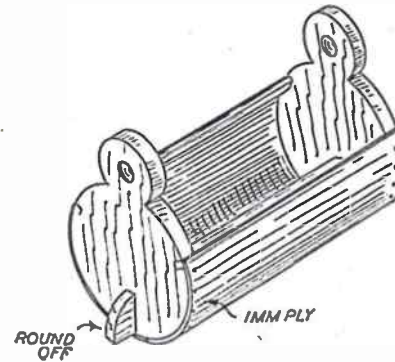


Fig. 4

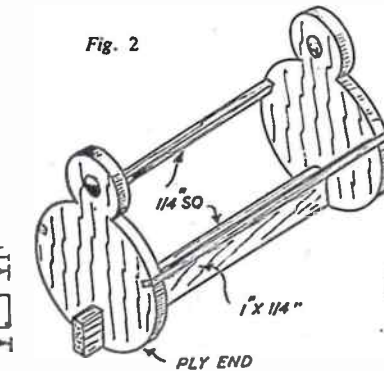


Fig. 2

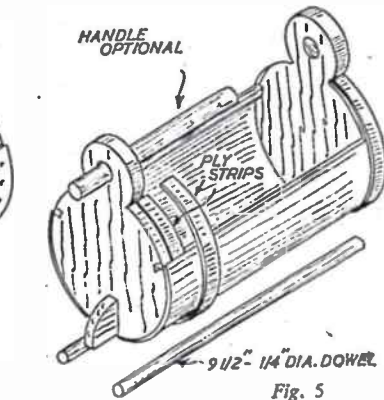


Fig. 5

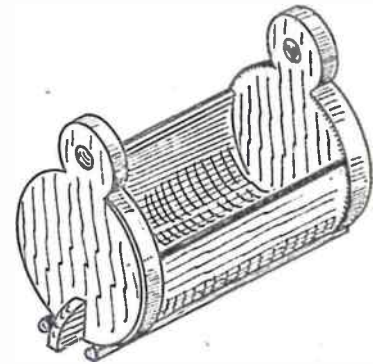


Fig. 5. Note that the smallest strips first fill the shoulders of each end, the final capping strip extending right round the ends. There should be no difficulty in getting the plywood to conform to this curve, although temporary

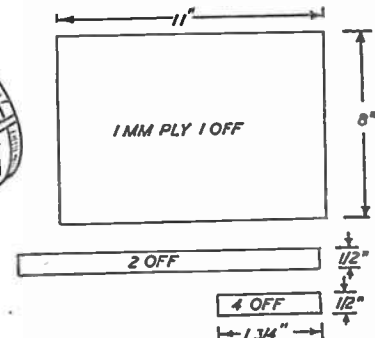


Fig. 3

pinning is advised again until the adhesive has set.

The stand itself is then completed by gluing and pinning 9 1/2 in. lengths of dowel in place, spacing these as far apart as possible, but still letting the extreme bottom of the curved ends clear the supporting surface. In other words, get as big a spread as possible with the dowel 'feet', but let these do all the work of supporting the basket.

If you like you can add a handle to the top. This is another length of dowel slipped through the holes drilled in the 'head' of each end. This dowel can be a tight fit, or a loose one, depending on whether you will want to remove the handle frequently or not. Alternatively, you can omit the handle entirely.

(R.H.W.)

Completing the Mains Two-Valve

Fig. 3 shows the chassis layout, and the parts may be screwed or bolted in position. A bolt is required through one of the fixing feet of the tuning condenser, since this point forms the common H.T. negative junction shown in Fig. 4.

Full details for tuning coils have been given in past issues. One of these could be used, but in order that stations may be tuned in fairly accurately according to the dial-readings, a ready-made coil is desirable. That recommended can be obtained from T. G. Howell, 29 McWilliam Road, Brighton, 7, being a dual-wave type with primary and reaction. Finally, correct dial indications also depend upon the shape of the tuning condenser plates. That required, for the coil and dial mentioned, is a J.B. .0005 mfd. This may be obtained from Coventry Radio, 189 Dunstable Road, Luton, Beds.

Other coils, condensers and dials may be used. But if these items are not designed for use together, stations may not necessarily be tuned in at the positions marked on the dial. If a home-wound coil and odd condenser is used, a dial marked in degrees is, therefore, recommended.

Any insulated wire of about 20 S.W.G. can be used for wiring up. Tinned-copper wire solders most readily. Bare wire and lengths of insulated sleeving can also be used. For speaker connections, about 12ins. of flex should be used. The mains leads should be good flex, terminating in a proper mains plug.

Coil connections to the coil itself will be found on the maker's data sheet. If a home-wound coil is used, the instructions from which it was wound should be followed.

Operational Details

All wiring should be carefully checked against the diagrams, and the mains-dropper clip set so that the maximum amount of resistance is in circuit. Polarity of connection to the mains plug must be correct.

Upon switching on, the receiver should commence to warm up. If a good quality high resistance voltmeter is to hand, adjust the dropper clip until a reading of 25 V is obtained across the output valve heater. If no meter is available, adjust the clip until the set reaches full operating temperature (as shown by normal reproduction) within 45 seconds of switching on from cold. In all cases withdraw the mains plug before altering the dropper clip.

Once the correct position is found, the clip need only be altered if the set is

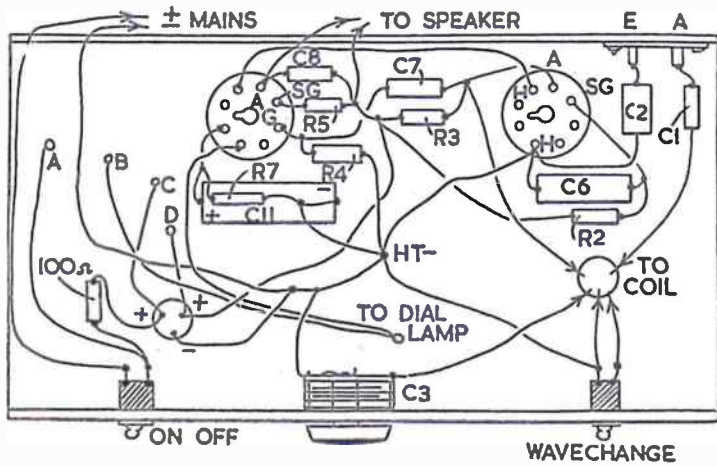


Fig. 4—Wiring under the Chassis

used on mains of a different voltage. If the dial lamp is very dim, this also indicates that too much resistance is in circuit, so that the resistance of the dropper should be reduced by moving the clip. If the dial lamp tends to fuse, a resistor of about 40 ohms can be wired in parallel with it.

Proper reproduction will only be obtained when the speaker is mounted in a cabinet.

For A.C./D.C. Use

The set may be used on A.C. mains by adding the rectifier shown in Fig. 2. A 25Z4 or similar rectifier is recommended. Counting its pins clockwise from the key-way, and viewing the valve from below, its connections are as follows:—

- 1, unused.
- 2, heater (to R6).
- 3, anode (to 100 ohm resistor).
- 4, unused.
- 5, joined internally to 3.
- 6, unused.
- 7, heater (to dial lamp).
- 8, cathode (to C10).

A metal rectifier of 60 mA, 250 V rating, or above, may be used. If a

rectifier is added, either of the metal or valve type, the set can still be used on D.C. mains. However, it then serves no useful purpose, though it is essential for A.C. mains. The rectifier may be mounted to the right of the chassis.

Important Points

As the dropper grows hot, ventilation must be provided; it should also be at least 1½ins. from the side of the cabinet. If the receiver is totally enclosed in a wooden cabinet, as recommended, no danger of shocks need exist.

It is necessary that the dial lamp does not touch the drive assembly, and an insulated lamp clip is recommended. C9, C10, and C11 must be wired in the correct polarity, as shown. All other resistors and condensers may be wired either way.

R7 is a bias resistor, and may require to be of a different value if a different output valve is used.

Provided these points are noted, the receiver should give satisfactory results for a long period, at little cost. (F.G.R.)

Wardrobe Finish

I HAVE made a wardrobe which I wish to grain to match existing furniture. I have bought a tin of Mander's stain and graining stain, but understand it has to be overgrained for the proper effect. Will you advise me how this is done? (A.K.—Bath).

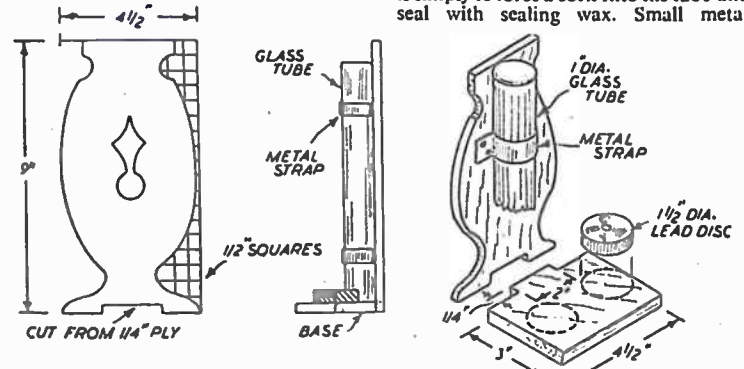
YOU do not state what wood you desire to match, but if medium oak, then raw umber mixed with beer would, perhaps, be a suitable graining colour.

This is applied over the present graining, and well brushed out, then an over-graining tool, which you can purchase from a good tool shop, is drawn over the wet paint in a straight or wavy line. It would be as well to experiment on a spare piece of wood first. You would find Cassell's Practical Graining and Marbling very helpful in the matter, especially as regards matching existing furniture.

An Unusual Bud Vase

WITH the appearance of a wooden vase silhouette, long stemmed flowers or buds are held in a length of glass tube mounted behind the face panel. A weighted base provides stability against tipping over.

Outline of the vase front can be drawn on a panel of ½in. thick plywood, 9ins. by 4½ins. and then cut out with a fretsaw. Duplicate the pattern shown on the drawing by use of the grid lines and do not forget the decorative cut-out

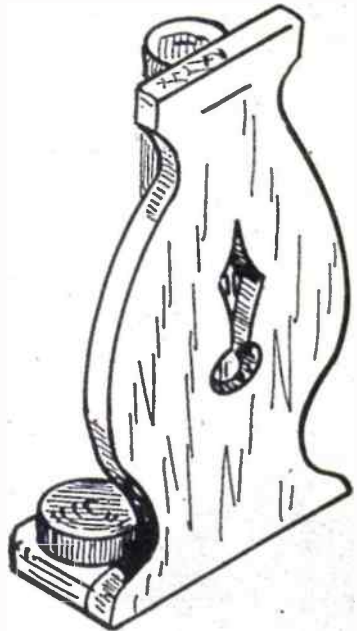


in the centre. The slot in the bottom is 2ins. wide to accommodate a stub tongue cut on the base piece.

The base itself is 4½ins. by 3ins., plus a tongue extension of ½in. on the smaller dimension. A thickness of ½in. is

adequate, although it can be cut from thicker material, if desired. Adjust the height of the front slot accordingly. Base and front are assembled by gluing and screwing.

The flower holder consists of a glass tube 1in. in diameter and about 8ins. long. A test tube of this size can be used, grinding off the lip at the top, or cutting this top right off, or an ordinary glass tube can be used with the lower end suitably sealed. An easy way to do this is simply to force a cork into the tube and seal with sealing wax. Small metal



be screwed to the base to give the assembly stability. Two discs of lead about 1½in. in diameter and ½in. thick would be ideal, but brass or any other metal can be used. Coloured in enamel to contrast with the natural wood finish of the base, or polished, these balance weights add an unusual touch to the appearance, not at all out of keeping with the assembly. (R.H.W.)

TO DELIGHT SMALL BOYS

Invisible Writing and Secret Codes

HAVE you ever considered how much fun you could have with a secret code of your own?

Many clever methods of arranging the ordinary alphabet so that only the holder of the key can read the cipher are used regularly by diplomatic couriers, detectives, business people and so on. There are numerous invisible inks too, which can only be made to appear when treated with chemicals or when heat is applied.

Using Cow's Milk

Cow's milk can be used as an invisible ink; it will turn pink when warmed in front of the fire. Diluted sulphuric acid is much more satisfactory, though, because it turns black when heated. When mixing this ink it is advisable to wear a protective apron or overall

as sulphuric acid is very strong and will ruin your clothes if in contact with them. It must be watered down to one part acid and eight parts water. *But remember—always add acid to water, never vice versa.*

M	N	P	C	B	Q	A	O	H	G	T	W	X
A	B	C	D	E	F	G	H	I	J	K	L	M
K	S	L	R	D	U	E	V	F	I	Y	Z	J
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Fig. 1

Water which has been used to boil rice is very efficient as an invisible ink. If sprayed with a very weak solution of iodine (one part iodine to seven parts water) it will reappear a vivid blue.

A spotlessly clean nib is essential when using invisible inks and always write on

a matt surface paper. If it has a glazed or glossy appearance the ink will not take effect.

Those who prefer coding their letters to friends can easily arrange one known only to each other. They are as fascinating to prepare as to solve. An easy one is to set out the alphabet and then let each letter stand for some other in the code. All correspondents must have a copy of the code with the letters set out as in Fig. 1.

When writing your message you put

W	O	T	M	J
N	M	R	I	O
I	O	A	N	H
G	R	I	G	N
H	R	N	B	C
T	O	T	Y	O

Fig. 2

(Continued on page 220)

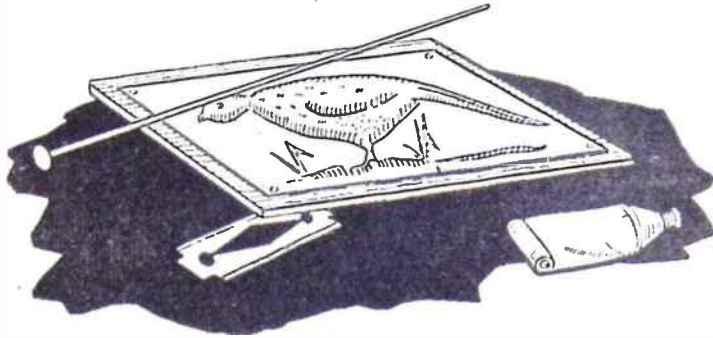
Making Miniature Wall Plaques

IT is possible for anyone to make a miniature wall plaque without any previous experience, and without spending a single penny. The plaques can either be hung in a small room or be used for decorating the centre of club shields, etc.

Materials

All the materials needed to make one plaque are one toothpaste tube and one knitting needle. Try to procure a tube without too much lead in it, as this type tends to be a little too soft. It is a good idea to collect, say, half-a-dozen or so made from various metals, and pick out the one which will suit your particular model. A model with a lot of fine detail will need to be made from a harder metal than one with just one or two large objects on it.

To prepare the tube for modelling, cut off the top of the tube near its mouth, unfold the overlap at the bottom end



After you have done this the metal is ready for use.

The Modelling

The subject to be modelled in relief should be drawn on the back of the metal. Placing a pile of old newspapers

the outline of the figure on the front of the metal with the point of the knitting needle, the needle itself being held flat on the metal. This is the secret of the whole thing, and, later on when the various textures are put in, must be repeated again and again to avoid a blurred outline.

Textures

If the model is not to be painted you must rely entirely on textures for its decorative effect. Two types of textures can be used, though they can be of any shape you desire.

1. Pressure on the front of the metal with the point of the needle, thus causing an indentation.
2. Pressure on the back of the metal, thus causing further relief.

Finishing

When the modelling is complete, trim off the edges of the metal to form a neat rectangle. The back should be filled with plaster of paris, papier mâché or some other similar material to make the relief permanent. The front can then be painted, preferably with enamel.

Before hanging, the model should be backed with a piece of wood and fastened with panel-pins. They can either be hung individually or a number can be put on a large piece of wood. (D.H.)

five columns as shown in Fig. 2—the writing being done downwards in reverse. Here is the message: 'John coming by train tomorrow night'. When you send the message however, the sentence is broken up with some letters in capitals. It might read something like this: 'WotMJ Nmrio ioAnh GriGn HRnbC Totyo.' It is absolutely impossible for anyone to read THAT unless they know the secret! (T.P.F.)



FIG 1

and trim up the side with a razor-blade and steel rule (see Fig. 1). The tube will then open out into a flat rectangular piece of metal, which should be thoroughly washed with hot water to remove all traces of paste.

Removing Ridges

The small ridges caused by the squeezing out of the paste must next be removed. This can easily be done by placing the metal on a pile of old newspapers and running the side of a knife handle or bone spatula across the surface with a fair amount of pressure.

under the metal to allow it to stretch, the relief is made by pressure with the rounded knob of the knitting needle. Start at the centre, moving the knob in small circles, and move out to the edge of the subject by gradually increasing the size of the circle. A fair amount of pressure is needed at the centre of the circle, but this can be gradually reduced as you approach the edge of the relief.

After this process is complete the whole subject will stand out in rough relief. The outline must now be made sharp and clear and the background flattened. This is done by pressing along

Invisible Writing and Secret Codes

(Continued from page 219)

the letters in the top row and the recipient deciphers them by reading the lower ones.

For example, if you wanted to write 'John is coming', the actual letters would be GSOK HU PSXHKA. Nobody could possibly read it unless

they knew the code and it is quite simple to devise another should your secret fall into wrong hands.

Another clever code with a simple solution is to set out the letter in a number of columns arranged with your correspondent in advance. It may be

One Good Deed.....

SOME time ago we had occasion to help a Mr. J. S. Kerney of Mellor, Stockport, to convert a waterline model of H.M.S. Nelson into an actual working model. He has now shown his thanks by sending us some details of a fluorescent lighting unit he made for a doll's house. As he feels that details of his scheme may be of interest to other readers, he has offered his notes for publication.

Details of the unit can be seen in the drawings on this page. A piece of cardboard is cut to the measurements shown in Fig. 1, scored along the dotted lines and bent and glued into position. The rear tab, however, is not fixed until after a bulb is inserted (see



Fig. 2). Wires are soldered to the bulb (the American type are best if obtainable), one on the side and the other at the bottom. Two small holes are then drilled in the container, the wires are

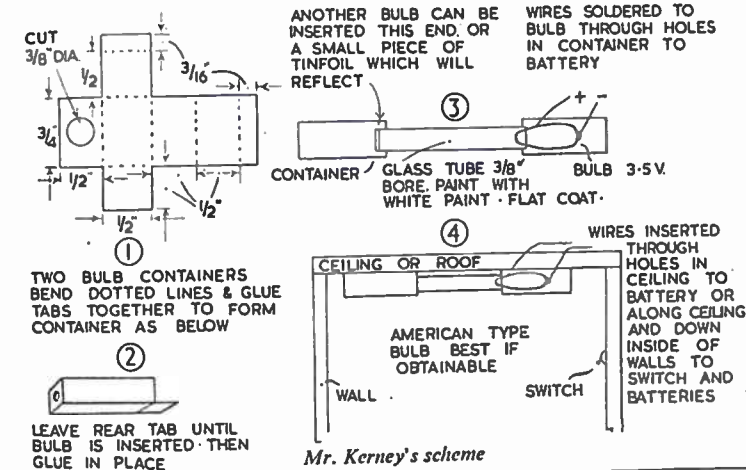
drawn through, pulling the bulb into the container as shown in Fig. 3.

The glass tube should be painted with a coat of flat white paint, and if only one bulb is used, the other end of the tube should be covered with a piece of tinfoil to reflect the light. The wiring can be brought through the ceiling of the doll's house and down the wall. The glass tubing used was of 3/8 in. bore which was just right for the American type of torch bulb in Mr. Kerney's possession. Our own type of bulb will do for the job, but it will only fit flush against the end of the glass tubing instead of inside, as with the American bulbs.

Thank you, Mr. Kerney. I feel sure your notes will be welcomed by readers who have daughters who want up-to-date fittings in their doll's houses.

Best Wishes

Today is the last of 1952, and I welcome this opportunity to wish you a bright and prosperous New Year. Good luck to you all.



Polish for Table Top

I HAVE finished veneering a table top, and would like to know the proper procedure to get a polished finish. (T.M.A.—Staffs.)

THE most simple method of finishing the table top is to lightly glasspaper the surface, using the finest grade, and apply Johnson's wax polish. This, after a time, imparts a brilliant finish and stands heat well. If you prefer polish, about the best method for an amateur is as follows:—soak a handful of cotton wool in french polish, enclose in a clean rag and rub over the surface with a circular motion. If the rag sticks, just apply a spot of linseed oil to the rag, but avoid too much—the least quantity

possible is best. Repeat the treatment at intervals until shiny patches appear. Wipe off, let dry and apply a finishing coat of spirit varnish in a warm room.

Papering Plaster Board

I LIVE in a house with walls made of plaster board and so far have used washable distemper to decorate them. Now I wish to cover them with wallpaper, but have been told that if I do this I will be unable to get it off again, as the water will fetch the paper off the plaster board as well. Is this so, and how can I prevent it? (F.C.—Oxford.)

APPARENTLY you have to deal with a brand of wall board composed of layers of paper, cemented with

a plastic compound. You could paper this but it might prove risky to remove the paper should you wish at any time to distemper again. The safest plan in such eventualities would be to let the paper stay put, merely sizing the surface and distemping it. The distemper should take well, but in case of certain colours seeping through the distemper, as sometimes happens, it might be safer to paper in white first, then to size.

Eel Fishing

WILL you kindly give me some advice on bait and tackle for eel fishing? (J.C.—Garway.)

EELS may be caught on a ledger tackle of stout gut or gut-substitute, mounted with an eel-hook, this being baited with a lobworm or redworm. Eels also take such baits as small fishes, maggots, grubs, etc. One of the best baits of all is a dead gudgeon on suitable tackle, allowed to lie on the bottom of the stream. When fishing

(Continued on page 222)

MISCELLANEOUS ADVERTISEMENTS

The advertisements are inserted at the rate of 4d. per word prepaid. Name and address are counted, but initials or groups, such as E.P.S. or £1/11/6 are accepted as one word. Postal Order and Stamps must accompany the order and advertisements will be inserted in the earliest issue. Announcements of fretwork goods or those shown in Hobbies Handbook are not accepted. The charge for use of a Box No. is 1/- extra. Orders can be sent either to Hobbies Weekly, Advert. Dept., Dereham, Norfolk, or Temple House, Tallis St., London, E.C.4

PROFITABLE spare-time hobby stamp dealing. Stocks unnecessary; details, S.A.E.—B.C.M. CREMYLL (HW), 3 Bloomsbury St., London, W.C.1.

SPARE-TIME homeworkers, either sex, urgently required. Clean work, good pay. Write—Area 343, 88 Rutland Street, Leicester.

SPARE-TIME profit? (Either sex). Assembling soft toys, etc. Let us detail your best method. No registration fees. Details, S.A.E.—Cuddycraft Supplies, East Rd., London, N.1.

WORKERS—full and spare time, required to make up simple Prestaplasta novelties at home. Experience unnecessary. Good rates. Stamped addressed envelope.—Prestaplasta Products (HW), BCM/125, London, W.C.1.

£3 WEEKLY by genuine clerical homework; no 'security fees'. Details, S.A.E.—S.E. Direct (Service), (Dept. H.W.), Ramsgate, Kent.

HISTORIC Hitler-Mussolini stamps included in super free packet. Approvals, 21d. postage.—Fildes, 10 Claude Road, Chorlton, Manchester.

MECHANICAL Wood ToyMaker—a book of interesting moving toys with 158 illustrations and patterns, 2/6. 'Home Woodwork', fifty useful things to make, 188 illustrations, 2/6.—G. F. Rhead, Hartest, Suffolk.

NICOTEXIT, the guaranteed smoking deterrent. Stops you smoking immediately. Purchase price refunded if it fails. Price per bottle; cash with order, 6/6; C.O.D., 7/3.—The Nicotexit Co., 62 High St., Croydon.

HARDBOARD—2 sheets 6ft. x 4ft., 25/- H.C.P. C.W.O.—Breakspear Garden Supplies, Ruislip, Middx.

LEARN SHORTHAND by January 28th. (1 hour's study nightly). 1st lesson, 24d. stamp.—Duttons (Dept. HB), 92 Gt. Russell St., London, W.C.1.

MODELS. You can make lasting stone-hard models with Sankey's Pyruma Plastic Cement. Supplied in tins by Ironmongers, Hardwaremen and Builders' Merchants. Ask for instruction leaflet.

DUPLEX self-adhesive Transfers for decorating fancy goods, trays, plastics, etc. List and samples, 3d.—H. Axon Harrison, Jersey.

DOLL'S HOUSE fittings and papers; send S.A.E. for list. Doll's house plan special; send 2/6. Trade supplied.—Zimplan, 88 Ware Road, Hoddesdon.

PLYWOOD offcuts. Gaboon in various thicknesses. Handy sized parcels for the cabinet, toy, model maker, and all handicrafts. Parcels made up in £1 and 10/- lots. Carriage paid. Send P.O. to—Reeves, Plywood and Timber Merchant, 33 Front Street, Monkseaton, Whitley Bay, Tel.: W.B. 4677. Parcels are now dispatched on day of receiving order

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through the window and down the wall, terminating in an earth spike, or being joined securely to some metal object (preferably of a non-rusting nature) buried in the ground. No 'earth' in your workshop would be effective since this could not be in contact with the ground, and would not provide true earthing, because of this.

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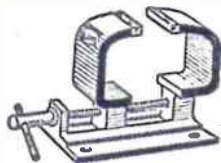


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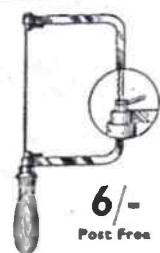
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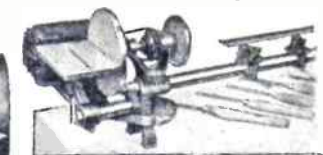
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(Continued from page 221)

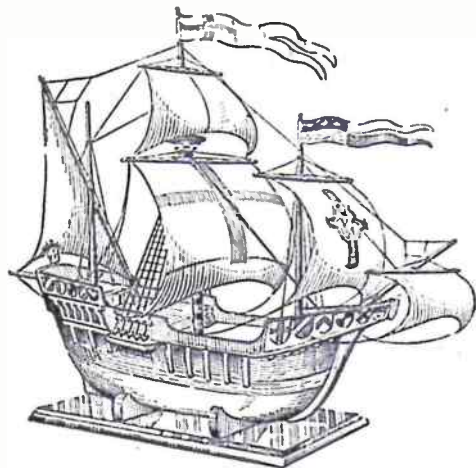
with this last-named bait you should allow the eel plenty of time to gorge it. Another method of catching eels in suitable places is by 'bobbing' with a bunch of lobworms, strung with a baiting-needle on to a length of worsted, which is attached to the line. The bunch of wrigglers is kept floating just off the bed of the river. On feeling a tug, the angler quickly hauls up the eel, which will cling to the worsted and bait. Eels may also be taken by 'night-lining' with a number of baited eel-hooks attached to a cord pegged to the bank last thing in the evening, the angler taking them up first thing in the morning, but this is not a sporting method, though it does reduce the number of eels in a water, which is all to the good, for eels are very destructive to other fish, including trout, consuming huge quantities of ova and small fry.

Earth

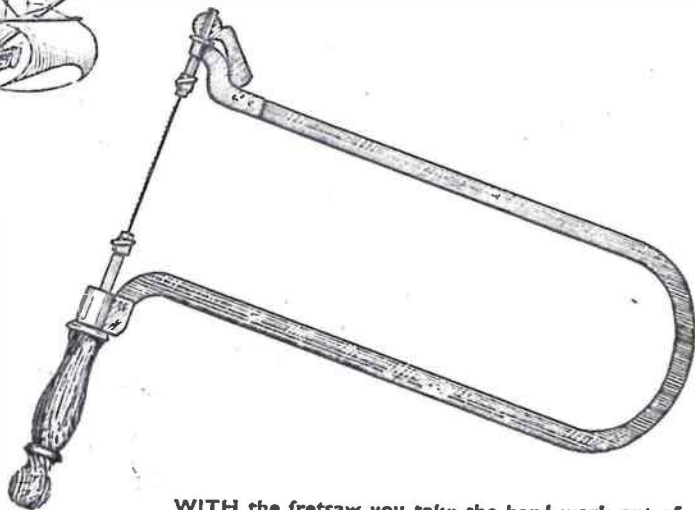
I AM interested in wireless and have a workshop in the attic; it is ideal for the aerial but the earth is not short enough. Is there any kind of chemical earth that I could keep in my workshop, or anything I could use as an earth? There is no water pipe into the attic—only an old gas fitting which has been cut off in the cellar. (D.G.R.—Old Trafford).

An earth lead must go to a metal object actually buried in the ground, or in contact with the ground. Gas pipes are not always electrically continuous, due to the method sometimes employed for joining, though it cannot be said whether this is so in your case. Normally a copper wire would provide a better connection. For this, fairly stout copper wire is recommended; bare wire is quite inexpensive, and would be suitable. It could be taken

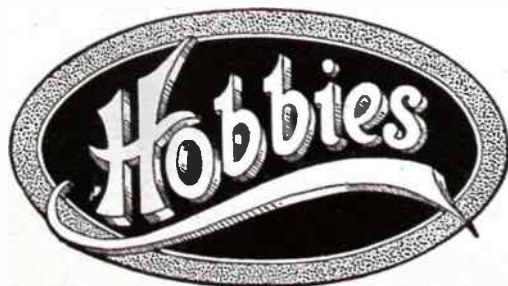
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