HOBBIES WEEKLY

FEBRUARY 26th 1958 VOL. 125 NUMBER 3252

IN THIS ISSUE

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

FREE design to make this

LIGHTHOUSE ELECTRIC LAMP

Delightfully novel and practical

ALL the romantic appeal of the lighthouses which perform such a noble mission round our coasts is captured in this charming design for an electric lamp.

Standing squarely and solidly on its rocky wave-lapped base it provides an excellent project for the keen modeller. At the same time the finished model has a real practical value for use as a bedroom, TV, or occasional lamp.

Those who purchase a Hobbies kit will find therein the specially printed acetate sheeting which forms the rounded 'window' of the lighthouse, and also the appropriate sized holder for the 'candle type' bulb which has to be purchased separately. Also included in the kit is an efficient two-way switch.

These instructions should be read through and understood thoroughly in conjunction with the design, before commencing the work, as modifications may have to be made according to the size of lamp obtainable.

Standing 14ins. high, the lamp incorporates a 25 watt candle type bulb obtainable from any electrical shop. The bulb used in our prototype model was a 25 watt clear Crompton candle lamp, which is approximately 4½ins. long overall by 1½ins. diameter in its widest part. If the bulb to hand varies slightly from these measurements, it may be necessary to modify the measurements of pieces 14, 15, 16 and 17 seen in Fig. 1, to ensure a comfortable fit for the lighthouse window section.

Workers who are using their own fittings should note that the lamp holder such as is included in Hobbies kit and which takes the candle lamp, is smaller than the standard household fitting. If purchased independently, workers should be sure to obtain a non-inflammable material for the circular window, which will not buckle or distort under the heat generated from the lamp.

Marking out

Read thoroughly the following instructions before starting to mark and cut out the pieces, to ensure that you have an overall picture of what is required. Then trace the various pieces from the design sheet and transfer them to their appropriate thicknesses of wood by means of carbon paper. Make sure that all parts have been accounted for before cutting out with the fretsaw and cleaning up with glasspaper.

Most pieces are shown full size on the design sheet, excepting for one or two instances where they will have to be drawn on to the wood according to the measurements given. To accommodate all the various pieces on the design sheet, some have been drawn over others, such as pieces 1, 2 and 3. Before marking out these particular pieces, study carefully Fig. 2 to see the finished shapes required.

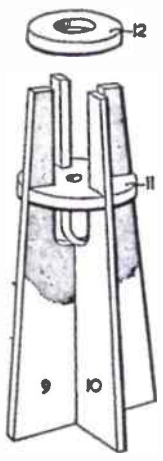


Fig. 6

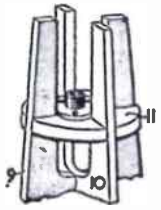


Fig. 7

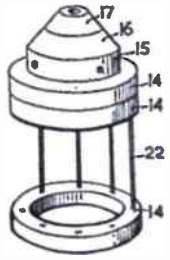


Fig. 9

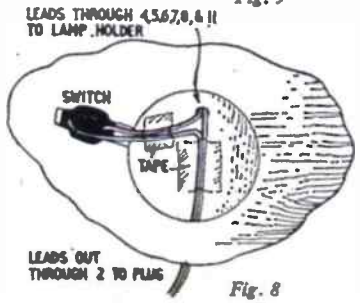


Fig. 8

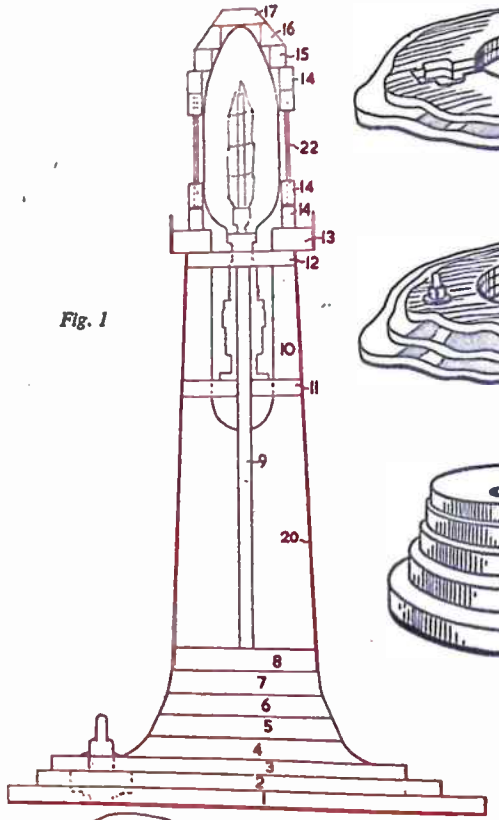


Fig. 1

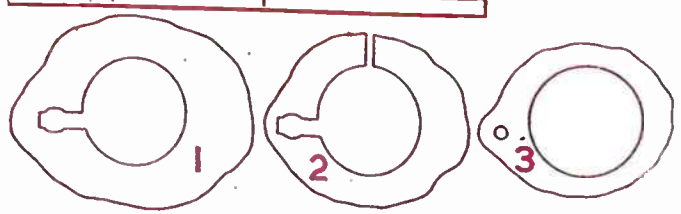


Fig. 2

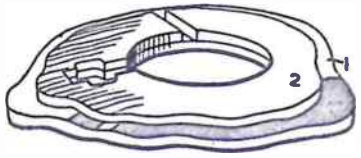


Fig. 3

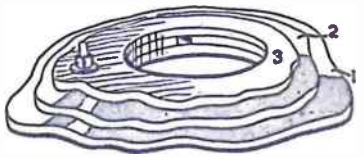


Fig. 4

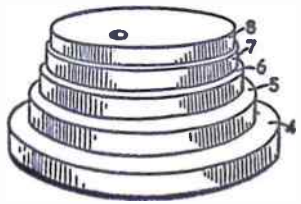


Fig. 5

Starting the assembly

With all pieces cut out, a start can be made with the assembly. The rocky base of the lighthouse consists of pieces 1, 2 and 3, stepped and glued one on top of the other (Figs. 3 and 4). Next assemble the base of the lighthouse consisting of pieces 4, 5, 6, 7 and 8, which are glued together in the order shown in Fig. 5. A ¼in. hole for the flex lead is drilled through this section about ¼in. in from the edge of piece 8. This completed section is shaped as seen in Fig. 1, with the modelling knife and rasp, finishing off smoothly with glasspaper. Note that a 'step' has to be left between pieces 7 and 8, which will later accommodate an overlay of thin plywood, forming the main 'shell' of the lighthouse. This section can now be glued to the base (Fig. 1).

For the central portion of the lighthouse, pieces 9 and 10 are halved and glued together, and the locking piece 11 is also added by gluing (Fig. 6). Screw the nipple to take the lampholder on to piece 11 (Fig. 7), and then glue this section to piece 8 (Fig. 1). At this stage the lampholder and switch must be wired up in the correct manner as shown in Fig. 8. Wiring must be completed now, as later the fittings will be inaccessible.

Building the body

Now cap the assembly by gluing on pieces 12, 13 and 14 (Fig. 1). Cut a thin card template to the shape of piece 20, shown as a dotted line on the design sheet. This is to form the body of the lighthouse, and will wrap round the section consisting of pieces 8, 9, 10, 11 and 12. When the exact shape has been determined on the template, transfer it to thin plywood and cut out with scissors. Wet both sides of the thin ply with hot water to make it pliable, and roll it up fairly tightly, binding round and round with string. Leave to dry for a few hours, and when the string is removed, it will be found that the plywood retains its rounded shape and can be fitted in position quite easily. Glue it to pieces 8, 9, 10, 11 and 12, ensuring a butt fit down one of the pieces 9 or 10. Bind round and round again until the glue is dry.

Now the top section (Fig. 9) can be assembled. Bore eight equidistant holes in two pieces 14 with a fretwork drill and insert the pieces of wire (22) as in Figs. 1 and 9, to form a sort of cage. Slightly larger holes are drilled in pieces 15 and 17 for ventilation purposes, and then the assembly is completed as in Fig. 9. Shape away the steps to form a cone.

To give a diffused light, one side of the acetate window sheeting should be buffed and this can be done by rubbing with fine grade glasspaper. The lattice decoration can be added on the roughened side with indian ink and a mapping pen. The window is trimmed to fit between two pieces 14 on the outside of the wires 22, and fixed in position with a colourless adhesive. String wound round the window while the glue is drying will also help.

The balcony is formed by a ¼in. wide strip of thin card glued round the edge of piece 13 (Fig. 1). When the bulb is inserted in its holder, this top section should rest on piece 14 snugly over the bulb fitting.

The door (19) and small windows (18) are cut from thin card and glued in position. The windows can be staggered approximately as shown in the finished illustration. The interiors of the top two windows can be pierced through the shell of the lighthouse to allow light to shine through, but their initial positioning needs to be tested with a pin to ensure that pieces 9 and 10 do not come in the way and obstruct the cutting of the thin ply shell.

The rocky base

Shape the base by chipping the sharp edges of the steps formed by pieces 1, 2 and 3. Fill up with plastic wood at the same time forming the shapes of the rocks and wave crests by moulding the plastic wood with the fingers.

The model is now ready for painting. A combination of white, red and black looks quite attractive, while the rocks and waves will be indicated by mixtures of green, blue, white and brown.

The ladder is made up as shown on the design sheet, painted grey and glued to the base and under the doorway. The number of steps is optional, and the length of the ladder should be adjusted to suit the angle required.

Hobbies kit No. 3252 for making the Lighthouse Electric Lamp contains all materials, including lampholder, switch and printed window material. Price 22/6 from branches or Hobbies Ltd., Dereham, Norfolk (post free)

A JET PLANE WORKING TOY

THIS attractive toy can be produced in a few hours, mainly from odd pieces of wood. The parts shown on the pattern page are full size and should be transferred to wood by means of carbon paper. Cut one of (A) from ¾in. wood, one each of (D) and (E) from ¼in. wood, and two of (B) also from ¼in. wood.

Pieces (F), (G) and (H) are ¼in. thick and you require three of each. Glue pieces (G) between (F) and (H), making three little jet planes in all. Shape them a little after the glue has set. Piece (C) is a length of ¼in. round rod.

Glue the two discs (B) to (A) in the position shown and glue disc (D) to the end of the spindle (C). The large disc (E) is glued lower down as shown. Screw two 3in. diameter wood wheels to (A) and attach the little planes to (D) by means of screw eyes and 3½in. lengths of wire as shown in Fig. 1.

The handle consists of a piece of ¾in. by ¼in. stripwood about 18ins. to 2ft. long. It is held in place by a long panel pin and glue. The planes are rotated by means of the large disc (E) which rests on top of one wheel. As the toy is pushed along the planes whirl round and round.

The toy will of course be finished by painting in bright colours. (M.p)

FULL-SIZE PATTERNS ON PAGE 367

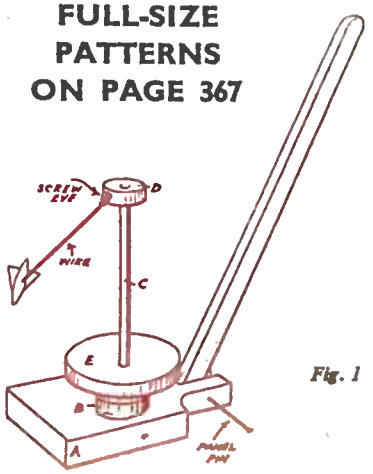


Fig. 1

For leather workers

HANDY FORMULAS

THE popularity of leathercraft as a personal or as a paying hobby needs no emphasis. The many readers who work with leather will, doubtless, welcome information on some of the trade methods, so as to be able to increase their skill. As with so many other trades, chemistry stands solidly behind it. The subsequent formulas can prove very helpful when problems arise.

Leather finish remover

Brush on dyes often tint unevenly. This is due usually to the surface finish which has been applied to the leather. Before applying any dye it is, therefore, better to remove the finish by means of a special preparation. There are several. The simplest is to dilute strong ammonia (specific gravity 0·88) with an equal volume of water.

Wet a clean rag with the solution and swab the leather well all over. Wipe with a dry rag and repeat the treatment. Finally swab with plain water and let the leather dry. The leather will now take the dye evenly.

Leather dyes

If you make a fair proportion of coloured articles and have been using proprietary dyes, you will find it cheaper to make up your own in the long run. A wide range can be made for a moderate sum. As they are in aqueous solution, there are no solvents to buy. These should be dissolved in the proportion of 1 ounce per quart. Have the water boiling and sprinkle in the dye and stir until dissolved. Allow to cool and bottle for future use. Simply brush on evenly in the usual way and buff with a soft cloth.

For brown, use Bismarck Brown; for black, either Nigrosine or Naphthalene Black; for red, Acid Scarlet; for yellow, Tartrazine; for blue, Soluble Blue; for orange, Orange II; for green, Malachite Green; and for violet, Methyl Violet. Chemical laboratory furnishers and microscope accessory dealers sell these dyes.

Edge polish-stain

When working a surface coloured leather you will certainly have met with the problem of the dull uncoloured edge left when the leather is cut. There is a special formula for giving the edge a gloss similar to the face surface. Simply buy 1 drachm of gum tragacanth from a dispensing chemist and place this in a bottle with ½ pint of water. Cork the bottle and shake occasionally. The gum swells and forms a thin jelly. When all lumps have swelled completely and dispersed evenly, add a few drops of chloroform as a preservative. For light leathers use it alone. To match coloured leathers add enough of any of the dye solutions quoted earlier to give the desired shade.

Leather finishes

If the leather does not buff up well enough after dyeing, lustre may be restored by a finishing preparation. This may also be used on new leather if desired.

Albumen-milk finishes are much used. Dried albumen is commonly used, but as it is expensive and the proportion used in the preparation is low, it is cheaper to make use of egg white, which contains plenty of albumen. Further, it is already in solution and obviates the danger of overheating the solution when dissolving the dry albumen.

Separate the white from an egg and note its volume by pouring it into a small glass and marking a gummed label at the level of the egg white. Put the white into a small jug. Using the glass, measure three times the volume of milk and put it into a cup for the time being. Now measure out nine times the egg white volume of water into the jug containing the white. Whip the white and water lightly with a fork to separate membranes; remove these and stir in the milk. The finish is now ready for brushing on the leather. Apply one or more coats and allow to dry. An excellent finish results. Over a period of time, this finish also becomes water resistant and does not rub off if the leather happens to get wet. This property may be quickly arrived at by going over the leather with a warm iron — just a little hotter than can be comfortably borne by the hand.

Casein is another useful finishing material. If you buy it, make sure it is acid precipitated or lactic casein, not rennet casein. Rennet casein will not dissolve on the borax solution used in the preparation. You can also make it very cheaply for yourself by adding vinegar to skimmed milk. To make sure no fat remains in the skimmed milk (this would interfere with the preparation of the finishing liquid), let it stand overnight and carefully skim off any cream which has risen to the surface.

Add vinegar until the liquid is clear around the curd. Strain off the white curds of casein through fine cotton cloth, wash several lots of water through and dry on a plate in a warm room.

To make up the finish, warm 90 c.c. of water and 10 c.c. of milk to not higher than 130 degrees fahrenheit (55 degrees centigrade), stir in 2 grammes of casein and then 0·35 gramme of borax. When the casein and borax have dissolved, let the liquid cool and drop by drop stir in 5 c.c. of formalin. Lastly add a few drops of nitrobenzene. To use the finish, brush on evenly and allow to dry.

An easy finish for medium and dark leathers can be made from shellac and methylated spirit. They are used in the proportion of 1 ounce of shellac to 1 pint of methylated spirit. Place them together in a closed bottle and shake occasionally until the shellac has dissolved. Brush on the leather one or two coats, allowing to dry between each coat and after the final one. Buff up with a soft cloth. This finish is water resistant.

Patent leather finish

For fancy articles a high gloss finish such as the patent type is often suitable. For this we use a special solution of celluloid. Put into a dry bottle ¼ fluid ounce of amyl acetate, ¼ fluid ounce of ethyl acetate, 1½ fluid ounces of acetone and swirl the bottle to mix them. Add ¼ ounce of celluloid clippings, close the bottle and shake now and again until the celluloid has dissolved.

Next add 1 fluid ounce each of amyl alcohol and solvent naphtha, and lastly ¼ fluid ounce of castor oil previously mixed with 1 fluid ounce of methylated spirit. Shake until an even mixture, free from striae, is obtained. This preparation is inflammable and so should be worked with in flame-free conditions.

Spray the leather several times until a high gloss results, letting each coat dry before applying another, of course.

'Sam Brown' polish

Before we leave finishes you might be glad to know of a simple paste polish which is very suitable for leather belts, straps and similar articles. In a double boiler whose outer jacket contains boiling water, heat up 2½ fluid ounces of turpentine (not turpentine substitute). When it is hot add 2½ ounces of carnauba wax, ½ ounce of candelilla wax, 1½ ounces of Japan wax and ½ ounce of paraffin wax. When the waxes have melted and dissolved in the turpentine, pour out the polish into tins to set.

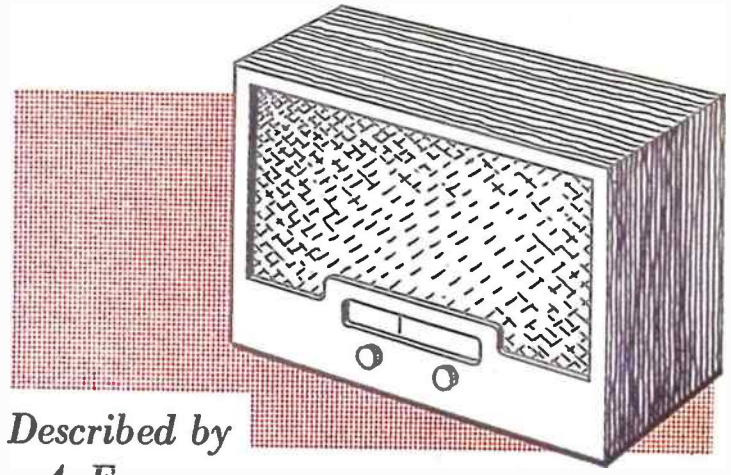
Leather adhesive

While some of the universal glues are

● Continued on page 359

For mains use

A 5- or 6-VALVER



Described by

A. Fraser

COMPONENTS LIST FOR 5 VALVE

V2, 6A7 (a)	3	9
V3, V4, SP61 (b) (c)	2	0
V5, EL32 (d)	3	9
V6, 6X5 (c)	5	0
XT, crystal diode (b)	1	0
Valveholders, M.O. (2), I.O. (2), Am. UX7 (1), (b)	2	0
Twin gang, 2 I.F.T's, 1 coil pack (a)	3	9
Speaker and O.T. (a)	10	0
Mains transformer (250 v 6·3 v 3A) (d)	11	9
C18, C19. 32 mfd. 350 v (2) (e)	2	0
C5, C6, C9, C10, C11, C13, C15, C16, (b)	1	4
C7, C13, ·0001 (b)		6
C8, 470 pfd.		6
C14, C17, 25 mfd., 25 v (e)	1	0
R1 (47K), R2 (270), R3 (47K), R4 (10K) R5 (47K), R6 (180), R7 (470K), R8 (680) R9 (100K), R10 (200K), R11 (470K), R12 (470) (f)	3	0
R13 (2K) 5 watt wire wound	1	0
V.R. 1 meg. volume control (f)	1	6
Toggle switch (bakelite) (b)		6
Drive drum and spindle (d)	2	6
Chassis, aluminium	1	6
Nuts and bolts	1	0
Total	£2 19	4

(a) Duke & Co., 621 Romford Road, London, E.12.
(b) J. Annakin, 25 Ashfield Place, Otley, Yorks.
(c) A. Padgett, 40 Meadow Lane, Leeds, 11.
(d) Radio Supply, 32 The Calls, Leeds, 2.
(e) Wm. Benson, 136 Rathbone Road, Liverpool, 15.
(f) Alpha Radio, 103 Leeds Terrace, Leeds, 7

IF you want a really powerful radio set for rock-bottom expenditure, then here is the answer. The performance of the set is such that even foreign stations need the volume control kept well down. The financial outlay will appeal to all, while no difficulty should be encountered in its construction. Even the novice will find it easy to build provided he takes his time and follows the diagrams carefully. The wiring, in actuality, is not half as involved as it might look.

The reader can go straight for the six-valve version, or he can content himself with the five valve, adding the extra valve when he so desires. The five-valve version will be found sufficiently adequate by the majority of readers.

Although only medium waves are provided (these being the most used), other wave-bands can be substituted, or added, as desired.

The remarkable price is achieved by using good surplus components to some extent. For instance, three of the valves are SP61 types. This powerful war-time valve can be obtained often new and unused for anything between 1/- and 2/6, and sometimes used ones can be had for 6d. Another bargain is the variable condenser and two I.F. transformers obtained for 3/9. These proved to be excellent value, but it pays to examine the transformers by removing the contents of each can, making sure that the windings are intact, and attaching fresh leads (see later).

Aluminium chassis

The first thing to do is to make the chassis from aluminium sheet, 22 to 18 gauge, the thicker the better. Fig. 1 shows the cut-out scheme. The valve-holder cut-outs should be 1⅛ ins. diameter. If you have not got a chassis cutter, then use a fretsaw with metal-cutting blade. For small holes use a drill.

The dotted lines indicate where the sheet should be bent. Newcomers to radio may be interested to know that chassis can be bought ready made (with cut-outs if desired) for a few shillings.

When the chassis is ready, fix in the valve-holders. V1, V3, V4 are Mazda Octals and should be fitted first. V2 is American UX7 and should be fixed next. Lastly, fit V5 and V6 which are International Octal. See that all valves are oriented properly with their tag numbers situated as in Fig. 2. See also that soldering tags are fixed under the retaining bolts as shown in the diagram.

If the valveholders have been used and wired before, then remove this wiring with the soldering iron and pliers, and leave the tags clean.

Now turn to the I.F. transformers. See that the windings inside are intact and renew the leads where necessary. There should be a lead from each side of each trimmer condenser mounted over each coil. The leads should be insulated and fairly long to allow surplus to be cut off later. They should also be coloured differently so that the leads from one coil are not confused with those of the adjoining coil. Thus, in Fig. 2, the I.F.T. used is the one with the lead issuing from the top of the can. This lead is probably black. If so, then make the companion lead black also. (This will issue through the chassis at (F) in Fig. 2.) The leads from the other coil in the can could be yellow and these come through the chassis at (H) and (G).

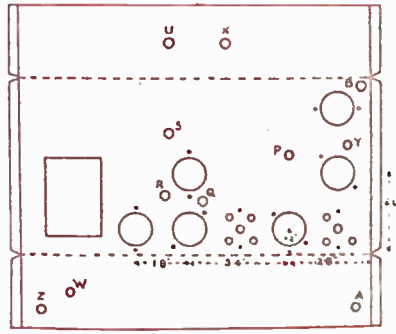


Fig. 1

With the second I.F.T. all the leads come through the chassis. The two leads from one coil should be of one colour and come out through (J) and (K). The remaining coil leads should be of a different colour to distinguish them from those of the first coil, and they should come through at (M) and (L).

Fix the I.F.T. cans with the screws provided, not forgetting the solder tags shown.

Next, bolt on the tuning condenser. Before so doing, solder a short length of 18 gauge tinned copper wire to the bottom tag of the fixed vanes of the back section of the gang. This projects through the chassis at (P) (Fig. 2) up to ¼in. or ⅜in. It must not touch the chassis so insulate it with sleeving and use a grommet for the hole.

Finally, earth to chassis the tags contacting with the rotating vanes of the twin-gang.

Fit the volume control (VR) next, to the front runner of the chassis. In order

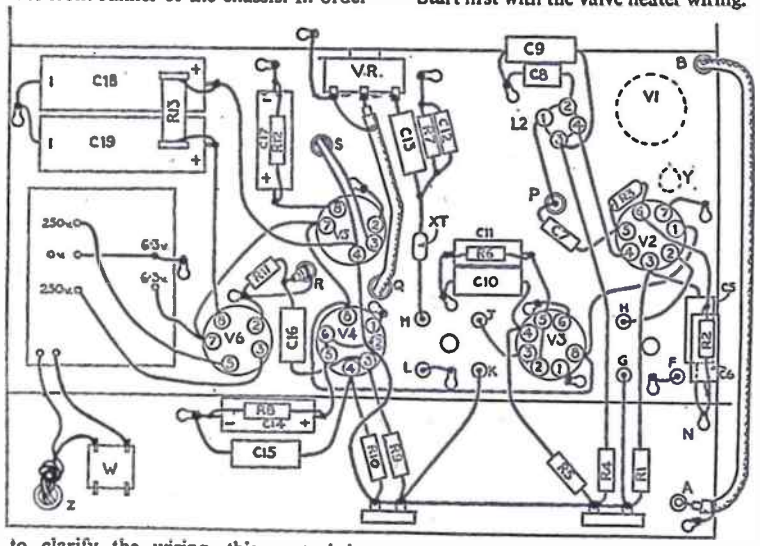


Fig. 2

to clarify the wiring, this control is shown in Fig. 2 to be half-way along the runner but in actual fact it should be placed further to the left, about 1½ins. or so from the half-way point.

The smoothing condensers C18 and C19 should now be fixed to the chassis by means of a strip of metal passing over both cylinders and bolted at each end to the chassis. Note that the negative ends of each condenser are together towards the left, later to be joined to the chassis soldering tag nearby.

Now fix the switch (W) on the back runner and the two tag strips further along towards the other end.

The coil L2, which is the oscillator coil, can next be fixed in. The coils in the coil pack sent with the Tuning Condenser and I.F.T.'s were considered unsuitable by the writer, who made his own. (Instructions for coil making were given in *Hobbies Weekly* dated 5th June, 1957.) One can, of course, buy excellent coils in the shops — in this case you will need a medium-wave aerial coil and medium oscillator. Note that with home-made coils, tag 1 in the diagram (Fig. 2) represents the start of the main winding, with tag 2 the end of it. Tag 3 is the start of the small coupling winding with tag 4, the end of it. Both coils are wound in the same direction.

Leaving aside the mains transformer for the time being, as it makes the chassis too heavy to deal with while wiring, we can now commence wiring up.

Use insulated connecting wire (tinned copper) of 22 or 24 gauge. Single wire is better than stranded. Use a hot iron and Ersin multi-core solder which needs no flux.

Start first with the valve heater wiring.

Keep all these wires pressed close to the chassis.

The rest of the wiring can now be started working on each valveholder separately, beginning with V2. Study the practical (Fig. 2) diagram in conjunction with the theoretical (Fig. 4) as you go along. The wiring is clear and straightforward, but we will clarify one or two sections which may possibly require amplification.

For instance, in connection with V2, tag 3 (which is also joined to R1) is joined to a ·1 mfd. condenser (C5) which lies on the chassis and whose other end is earthed to the chassis soldering tag (N). To the same tag (N) is connected another ·1 condenser (C6) which lies on top of the first condenser (C5). It will be seen this second condenser (C6) has a resistor R2 joined across it. The upper lead of the resistor must not touch the casing of the condenser. The ends of both resistor (R2) and condenser (C6) are joined to tag 6 of V2.

Note that the lead (F) of I.F.T. 1 is earthed to chassis.

The leads from the H.T. rail, such as that to L2 from R4, should be held well above the other wiring below.

All wiring in the set should be kept as short and direct as possible, consistent with keeping each lead separate and apart from each other to avoid interaction.

To (M) of I.F.T. 2 is joined a crystal diode (XT). If the ends of this are soldered then hold the wire with pliers to absorb the heat and solder quickly. Heat damages the diode. It is better to connect the diode ends by means of small nuts and bolts, rather than risk damage.

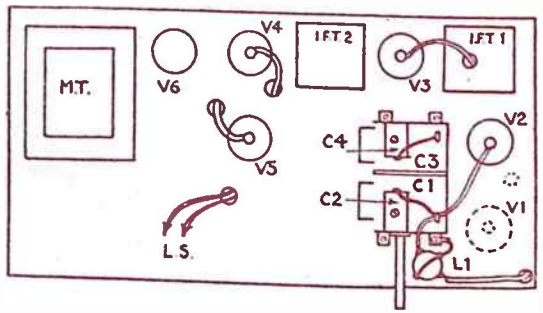


Fig. 3

Assuming you are doing the five valve version first, begin by connecting tag 7 of V2 to the nearby solder tag. Then join tag 1 of V3 to chassis, then tag 1 of V4, then tag 2 of V5, then tag 2 of V6.

Next join tag 1 of V2 to tag 8 of V3 and the latter to tag 8 of V4, and this again to tag 7 of V5, and then this to tag 7 of V6.

The connection from R10 to tag 4 of V5 takes rather a tortuous course in the diagram merely to clarify the wiring system. In actuality, it should be a straight, short connection direct from tag to H.T. rail.

The lead from the centre tag of V.R., which goes through the chassis at Q to join the top cap of V4, is a screened lead.

At each end, the outer braiding is pulled back and bound with bare wire (which is taken to chassis in the case of that end near the volume control).

There is a similar screened lead through the chassis at R. Here the outer braiding is pushed back, bound and earthed to the soldering tag nearby. The core of the cable is joined to the junction of R11 and C16. The other end goes to top cap of V5.

When joining R13 to C18 and C19, see that the ends are positive. The wires of the resistor should not touch the outer case of the condensers.

Now, fix in the mains transformer and connect the leads as shown in the diagram (Fig. 2). Put a knot in the main flex before it goes through the grommetted hole Z.

To complete the underchassis wiring, join a screened lead to the aerial socket tag A, earthing the outer braiding as shown and lead the cable through the chassis hole B.

Turn the chassis upright now and mount the aerial coil L1, near the tuning condenser (see Fig. 3). Join the screened lead (through B) to the start of the small winding on L1. Connect the start of the large winding of the coil to the tag of the fixed vanes of section one of the tuning condenser. Join together the remaining ends of the coil and take to chassis as shown.

Now mount the trimming condensers C2 and C4. (These are obtained by unsoldering them from the coil pack sent with the I.F.T.'s and tuning condenser.) Bolt one to each side of the gang and join the free tag in each case to the appropriate tag of the fixed vanes (see Fig. 3).

One last connection is to join the top of V2 to the fixed vanes tag of the front section of the gang. See that all other valve top caps are properly connected as shown in Fig. 3.

Finally, very carefully check up all the wiring to see all is correct. If so, connect up the loudspeaker, and plug into the mains. All is now ready for alignment.

A signal generator is necessary for alignment. If this is not in your possession, then find someone who has one, or get a service man to align your set for you. It only takes a few minutes. Alternatively, replace the I.F.T.'s with ready aligned I.F.T.'s obtainable from various firms. This is ideal for the novice.

To align your own I.F.T.'s, first short the oscillator (back) section of the gang to chassis with a wire connection, then join the signal generator to the top cap of V2. Inject 465 kcs. signal, and having switched on the set, allow five minutes to warm up. Then adjust the top and bottom slugs of each I.F.T. until the signal comes loudest. Repeat until no further improvement is possible.

To tune the aerial stage temporarily, remove oscillator short and transfer the generator to the aerial socket, and proceed in the usual manner. If you have no generator, then adopt the following method:

When the tuning condenser has its vanes fully enmeshed, it can be said to have turned through 180°. Use a protractor and set the vanes at 136°. This is roughly the third programme position.

Plug in the aerial, then adjust the slug of oscillator coil L2 until the third programme comes in. Then adjust the slug of L1 until the signal is at its loudest.

Now set the vanes at 40°. This is roughly the Light Programme. Adjust trimmer C4 until the Light is heard (the adjustment is very critical). Then adjust C2 until the signal is loudest. Repeat the two operations described above until satisfied.

The set is now roughly adjusted and rotation of the tuning knob should show moderately good results from start to finish. The tuning should be gone through again properly when a proper dial is set up.

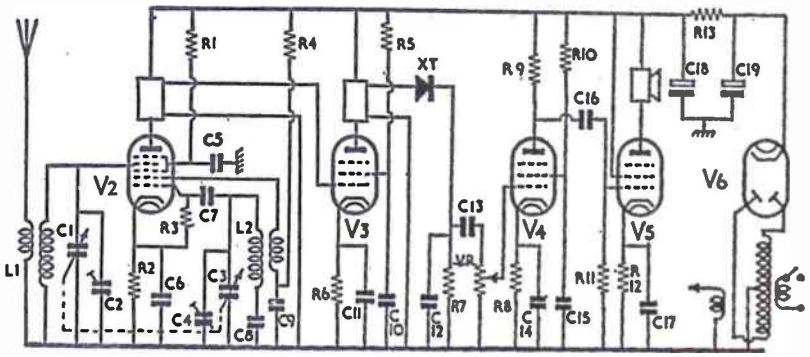


Fig. 4

This will be dealt with in another article, which will also describe the addition of the extra valve and the provision of a simple, modern styled cabinet.

● Continued from page 356

Handy Formulas

satisfactory for many purposes in leatherworking, occasion arises sometimes when these do not give the desired result. This is the time when a knowledge of special adhesives will be handy. A most useful leather to leather adhesive is easily made from 50 c.c. of petrol lighter fuel, 10 c.c. of carbon tetrachloride and 1 gramme of crêpe rubber. Place these in a well closed bottle and leave the rubber to swell and disperse, shaking occasionally. Coat both surfaces of the leather and press together for a few minutes. This is also a useful recipe for sticking down small scuffs on shoes.

Leather to metal adhesive

For this you need two solutions. Dissolve ¼ ounce of tannic acid in 5 fluid ounces of hot water and allow to cool. 1 ounce of glue is set to swell with 1 fluid ounce of water and then heated up in the glue kettle. Roughen the metal, warm it and coat it with glue, well moisten the leather with the tannic acid solution and press the two articles together. Allow to dry under a weight.

Heavy-duty leather adhesive

This formula is designed for thicker pieces of leather, which undergo considerable stresses in all weathers. In a double boiler containing boiling water in the outer jacket, heat together 1¼ ounces of resin, 1 ounce of crêpe rubber and ¼ fluid ounce of varnish until the rubber has dissolved and an even solution results. Allow this to cool and then stir in thoroughly ¼ fluid ounce of petrol lighter fuel. Coat both surfaces of the leather and leave under a weight for a few hours. (L.A.F.)

Gives a charming finish

PARIAN MARBLE

By S. Longbottom

WITH the aid of Keene's cement, sometimes known as parian and obtainable at paint shops, we can produce marbled products having a charm of their own.

This material is reduced by dehydration from calcium sulphate or gypsum and incidentally is not affected by normal atmospheric moisture. An agent is introduced to delay setting time but this in no way affects the properties. And there must be no confusion with ordinary plaster of Paris which has in fact an affinity for water. By mixing mineral colours with Keene's cement we can obtain many beautiful marble effects, but it will be realised that discretion must be used in the blending. For the experimental tiles illustrated, lime green, vermilionette, yellow ochre and black colours — again bought at the paint shop — were used for blending. Various methods will be described for obtaining special effects, such as veining or inlaying colours.

Moulds can be quickly made from plywood, cardboard or pieces of square section, and for a start you are recommended to prepare a plain tile, without any other ornamentation than the marbling. In Fig. 1 you will observe that the simple mould has been prepared from hardboard and ¼in. square section. See that the mould is perfectly square if you wish to avoid later trouble in having to true the tile. Pin the square section with one or two pins on each side.

Cardboard moulds are most useful where a curved object is to be made, using a block of wood for the base with nails hammered in on the outside of the cardboard shape.

Whatever material is used for the mould, some treatment is essential to prevent too rapid absorption of moisture and to prevent the casting from sticking to the mould. You may use old varnish, double boiled linseed oil, or shellac varnish, giving a second coat after the first has thoroughly dried. When applying one of these solutions take care that each corner of the mould is treated as well as the insides of the square section.

With the mould ready for the casting operation we are ready for mixing the material. For this you will need a dish large enough to hold the dry material and an old knife or trowel for stirring. Take enough dry Keene's cement, loosely packed to fill the mould, then add approximately one half more to allow for shrinkage. A little water is added and the plain, white mixture stirred until the consistency of stiff, thick cream. It should be thin enough to pour into the mould yet not so thin that the added colours dissolve too rapidly. You are advised to experiment with small quantities to determine the correct consistency.

When the plain mixture is quite even and free from lumps, the selected colours are spread across the mixture in separate lines. Do not be afraid to apply a generous quantity of colouring matter or the resulting marbling effect will be rather pale, but make sure they are quite separate.

The mixture, with colours, is now stirred about three times, when the colours will turn streaky. Note that it is absolutely essential to work the mixture from the bottom of the dish with the mixing knife or again the marbling effect will be lost and there will be large white patches instead of the customary veining.

Our liquid marble is now gently poured, or lifted with a trowel, into the prepared mould and it will be appreciated that it must run into the corners and that air bubbles must be eliminated. Take the mould in the hands, tapping each side in turn so that the material is tamped down and any air forced to rise to the top. If the mould is held by the surplus at the front and placed near the table edge so that it overhangs, this process is easily and quickly accomplished, each side being treated in turn. You will observe a few eruptions appearing on the surface, showing that the air is being expelled. The mould can then be laid aside for a few hours when the tile will set. Heat should not be used to speed the drying.

Slight shrinkage at the sides will be noticed on drying and by turning over on the palm of the hand the tile will fall out quite readily, the base now becoming the surface.

You will find that the material can be filed, cut or scraped and to ensure a level surface any eruptions on the back should be rasped away as well as any imperfections at the sides. The surface is an entirely different matter and to ensure a fine finish we can adopt several methods of polishing.

A parian tile can be polished if held under water, using a fine grade of waterproof glasspaper, buffed with electric tools or, perhaps easier still, scraped with a steel cabinet scraper. If the latter tool is used it is best to place the tile on a piece of hardboard, holding it in position by one or two nails partially driven into the board so that their heads are just below the level of the tile. Application of the cabinet scraper in straight even strokes will very quickly produce a smooth surface, removing any imperfections.

But to produce a glazed finish you are recommended to try an application of the following solution: 2 ozs. whiting, 2 ozs. oxide of tin, 1 oz. oxalic acid, 1 pint wood alcohol. The whiting will be best procured at a paint stores while the remainder will be obtainable from any good chemist's shop. To this mixture it is advisable to add a few drops of linseed oil merely for lubricating purposes while rubbing. The solution is rubbed into the tile until a polish appears, then with a dry pad, finishing off with the palm of the hand. Note that excess of linseed oil will cause discoloration on light colours and if in any doubt it is better to omit. It may also be mentioned that a good polish may be produced by any of the modern types of silicone wax polishes, and you could experiment with this type on the reverse side of the tile.

The foregoing briefly describes the basic information for the production of parian marble, but a little thought will reveal many other ingenious modifications in the blending.

If a knife edge is smeared with a fairly thin mixture of parian blended with a contrasting colour, held above the base of the mould and tapped gently but firmly with a piece of wood, the cement will drop off in straight lines. String is also helpful for curved inlays, but you should make a trial of this technique on a piece of waste cardboard, taking care not to overload the knife with the mixture. Many such lines are made to form a geometric pattern, crossed if required, and allowed to partially set for about ten minutes, or while you are preparing another marble mixture for filling the mould.

Other attractive patterns may be made by flicking different blobs of coloured mixture picked up with the fingers or a piece of stick on to the base of the mould, then filling as described after a short interval has elapsed for partial setting. The fingers should be dipped into the mixture and a quick flick will propel the cement on to the mould.

Finally, you may make a basic tint with one colour and, providing the blend is suitable, add another colour for the marbling effect.

Fig. 1 shows a simple mould for making tiles 4½ins. square. You need not be afraid of making a tight fit it is a simple matter to remove a fraction of the tile with a rasp. The tile can be attached permanently with any tile fixative or powdered resin glue prepared to directions.

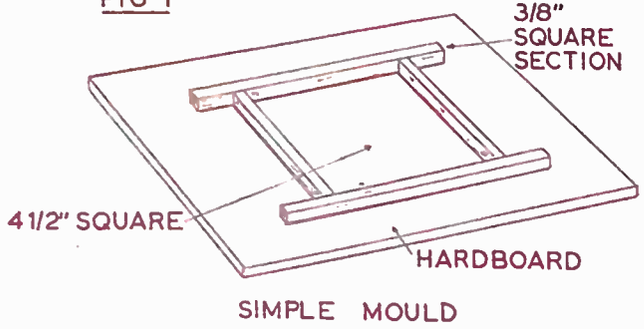
Fig. 2 shows a teapot stand where no base is required and for this mould you need some ¼in. square section to the measurements given. To make a cut off corner, triangular pieces are fitted, each measuring ¼in. from the corner. We then require a second piece of ¼in. plywood, or hardboard for pressing into the filled mould, and this piece as shown in Fig. 2a must be bevelled to assist easy removal. The dotted lines show how the octagonal piece fits into the plain mould, pushing out surplus cement and making a foot at each corner.

When the two pieces are prepared the mould (A) is filled with the marble mixture and the piece (B) pressed in with the bevelled edges downwards. The cement will rise at each corner overflowing the basic mould, but this surplus can easily be cut with a hacksaw, chisel or rasp when the material has set.

This by no means exhausts the number of articles you may make in this fashion. There are bookends, ashtrays, penholders and many other articles if you care to design simple moulds.

Mixing the cement with colours. Note they are laid across the plain mixture in separate lines

FIG 1



SIMPLE MOULD

FIG 2

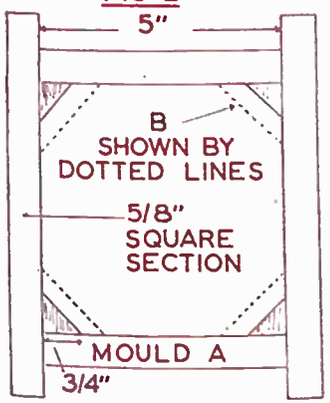
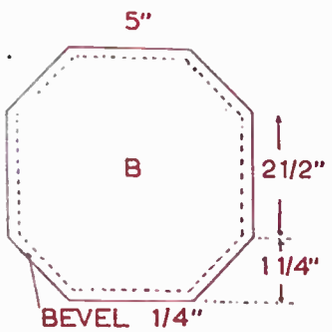
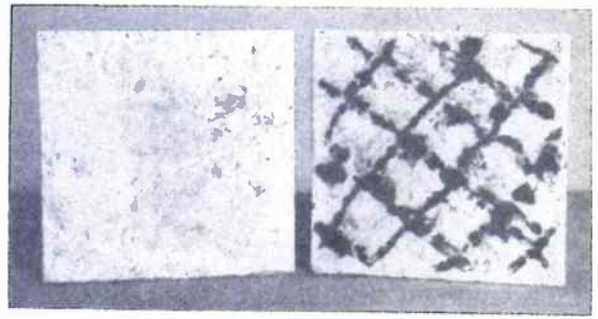


FIG 2a





The left tile has a plain blended marble effect. That on the right has been veined or inlaid

MOTH REARING AS A HOBBY

By B. Gardiner

KEEPING and rearing exotic moths is becoming popular as a hobby, not only amongst schoolchildren, but also with adults.

Many varieties of exotic moths may readily be obtained in this country from dealers, the prices varying from a few pence per dozen for the eggs, to several shillings for the larger and rarer cocoons. Much exchanging of varieties between breeders also takes place, and is the cheapest method of obtaining different moths once a start has been made. Moths from countries as far away as Australia, India and Brazil, may be raised here, many of them being of great beauty.

All that one needs for breeding a few of these colourful creatures is a simple box with a glass or muslin lid, but some keen moth-keepers have large heated greenhouses with dozens of varieties kept permanently in stock in elaborate cages.

The only other requirement is a supply of some shrub or tree on which to feed the caterpillars. Nearly all exotic moths can be induced to feed on some common British tree or shrub, such as privet, oak and apple.

After the eggs have hatched out, it is only necessary to supply the caterpillars with fresh leaves until they are full grown and to keep them warm. Their period of growth varies from a few weeks to several months. Several generations of some varieties can be reared every year; others produce only one generation a year, spending the winter either as an egg or a chrysalis.

Many moth-caterpillars are of great beauty. Some are adorned with downy hairs, others are covered in beautiful fern-like tufts (and in some varieties these sting like a nettle!); and yet others bear brilliantly coloured red or blue warts. Some are coloured, so as to blend in with their background; others brilliantly display themselves. Some of them attain an immense size, being among the largest insects in the world. The Giant Atlas moth, for instance, has a caterpillar 5ins. to 6ins. long, and the moth often extends to 1ft. across the wings.

After the caterpillar has finished feeding, it selects a suitable site, usually among the leaves of its food plant, and spins a silken cocoon, inside which it makes its chrysalis. In due course the moth emerges. It is only necessary then to leave a pair of moths together in a large box, and they will mate and lay eggs.

Devotees of this hobby are not confined to the summer for their pleasure. Many of the varieties feed on evergreens such as privet, and can be kept going all winter. There is no finer sight in the depths of winter than the emergence from its cocoon of a lovely green shaded moth, shot with yellow and red.

There is a constant friendly rivalry to obtain and breed different species, and, even more interesting, to obtain hybrids between two different species. This is quite a simple matter with many varieties which are closely related, and endless forms can be obtained.

While some people are content to keep one or two varieties at a time for the sheer pleasure of seeing the moths emerge, others who are more ambitious work out the life histories of these moths, many of which are unknown, even in their country of origin.

The food plants, too, are in many cases unknown, and there is always the pleasure and satisfaction of finding the right one and rearing a variety in this country for the first time.

While there is at present no society catering for this new hobby, there has recently appeared a book 'The Silkmoth Rearers Handbook' and the illustrations in this give some idea of the variety and fascination of these exotic and beautiful insects.

The Editor can give addresses of English firms who supply the insects. Please enclose stamp for reply.

COLLECTORS' CLUB

RELIGION is a popular subject among the world's postage stamp designers. My own stampevized story of Christianity was compiled from interesting features about Christian

CHRISTIAN MARRIAGE

By R.L.C.

marriage. The following stamps which were mounted on loose leaves and accompanied by appropriate notes, proved most suitable to theme and pocket.

New Zealand, 1946, Peace issue, 1½d. scarlet showing St. Paul's Cathedral, catalogued at 3d. mint. Austria 1946, 6 g. + 24 g. blue — Pulpit (3d. mint); 12 g + 48 g. violet — altar (4d. mint); 30 g. + 1 s. 20 g. red — organ (6d. mint). 1933, 50 g. blue — The Honeymoon. 1935, 24 g. blue — Mother and Child (6d. used); 1948, various flowers in natural colours, set of 10 (6/4d. mint). Italy, 1923, 20 cent orange and green — Christ and His disciples (1/6d. mint).

And the notes:

Marriage depends on true and profound love for its lasting success. Proper meaning of the marriage service is: 'I will unselfishly, faithfully consecrate my life to you. I will sacrifice all for our happiness.'

The happy home of true-hearted love is a Christian home where each day has its cheerful, satisfying duties, where self-sacrifice exists as an active cause and is plainly seen in the conduct of each of its members.

This is but one of the many themes of Christian life and teaching which can be beautifully illustrated in your stamp album. It offers to Christian philatelists an exciting and educating pastime.

£200 in prizes

1958 FRETWORK COMPETITION

MR. F. Webster of St. Helens, Lancs. has been a reader of this magazine for over fifty years, and his delightful fretcutting has frequently been noted by the judges when considering entries for Hobbies Annual Competitions.

In fact, over the years his name has consistently appeared among the prize-winners, and in the 1954 contest Mr. Webster achieved his ambition of becoming the 'champion fretcutter', thereby holding for a year the magnificent Silver Challenge Cup, and being presented with a replica and prize valued at over £15.

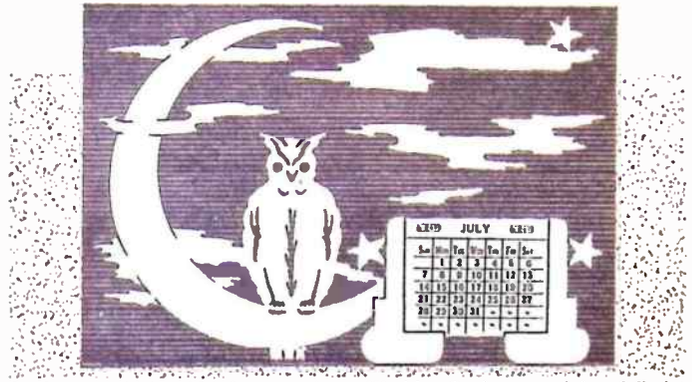
Subsequently Mr. Webster's competition piece — a photograph frame — won for him a First Class award in an exhibition at Blackpool where the adjudicator commented that he could not find a flaw, which rather bore out the decision of the judges in the Hobbies competition.

It is only natural that such a keen exponent of fretwork and Mr. K. S. Jewson, Engineering Director of Hobbies Ltd., should have had much in common

Mr R. Wines, of Bristol, the 1957 Fretwork Champion, who holds the Hobbies Challenge Cup.

to talk about when they met recently at St. Helens. Mr. Webster was awarded a special voucher in last year's Hobbies competition, and no doubt we shall see determined efforts by him and other previous 'champions' to wrest the crown from the present holder, Mr. R. Wines of Bristol. There is also the likelihood, of course, that an 'unknown' will have his (or her) name engraved on the cup.

The Owl Perpetual Calendar pictured on this page is the set piece for the 1958 competition in which prizes valued at over £200 are offered — for Seniors (16 and over), and Juniors (15 and under), and the competition piece is the same in



both classes, which will of course be judged independently. There is thus an excellent opportunity in particular for youngsters to gain one of the valuable prizes which range in this section from the First Prize Voucher valued at £12/12/-

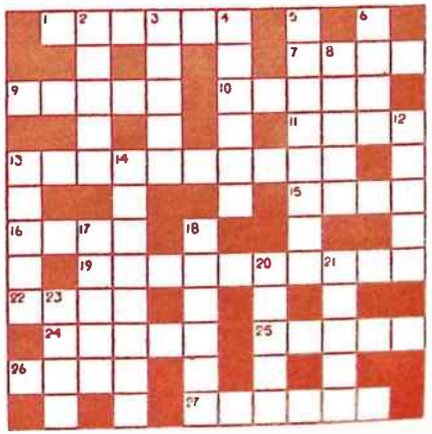
All entries must be made from Design No. 3228 which was presented with the September 11th, 1957, issue of *Hobbies Weekly*. Copies containing full details can be obtained from the Editor (6d. post free), and the latest date for entries is April 30th. Incidentally, the kit of wood, materials and full instructions for making the competition piece No. 3228 can be obtained from branches, or Hobbies Ltd., Dereham, Norfolk, price 5/3 post free.

Hobbies' Crossword No. 13

Note: Figures in parentheses denote the number of letters in the words required.

ACROSS:
1. Registered as a semi-Scotch Russian (6)
7. Glimpse (4)
9. Mixed with strong drink, like a shoe-string (5)
10. Designed to knock 'L' out of the new driver? (5).
11. The man with the rolling frenzied eye (4).
13. Lady with a lawn, but nobody to mow it (5-5)
15. A nose for the coast (4).
16. Nation loses a thousand — genuine! (4).
19. For measuring star-gazers' bright periods? (5-5).
22. Accommodate about fifty in the gap (4).
24. Hardly the language to expect a sailor to employ (5).
25. Golden transport! (5).
26. It's very dry in the Kalahari Desert (4).
27. This one has no ring (6).

DOWN:
2. Two Colonels and a nightcap (5).
3. Red is a change for these districts (5).
4. Stop being fed up in the noise! (6).
5. Press one for a reply (8).
6. Spill peas in church (4).
8. Author of 'Uncle Tom's Cabin' (5).
12. Inquire within for jobs (5).
13. You'll catch a cold with them! (5).
14. Le Studio is dismantled: it's a lonely life! (8).
17. I was somewhere else at the time (5).
18. They come in threes with two hips (6).
20. Yes, the Navy makes me long! (5).
21. Suitable time for March Past? (5).
23. Fat lot of good to the cook! (4).



★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★
★ SOLUTION WILL BE ★
★ GIVEN NEXT WEEK ★
★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

PHOTOGRAPHIC BOOKPLATES

OUR books are often our most treasured possessions. Many of them we have saved for and bought with hard-earned cash, and we look on our libraries, even if small, with pride. Although we may write our names

Bookplate copied from a drawing.

in them we can give our books a more individual touch by having our own bookplate. Apart from making a book more definitely our own, this should act also as a safeguard against people who are — shall we say? — a little careless about returning books. These people may borrow your most valued volume but they can hardly fail to return it if on the inside of the cover is a picture and an inscription intimating that this book is 'from the library of' John Smith, or Mary Robinson.

Most delightful bookplates can be made by the photographer, and at trifling cost. Once you have the negative you can print all you need.

The first consideration is the design. Here your imagination can have full play. You can depict one of your hobbies; your house or garden; flower arrangement; a scene from your foreign holiday; a still life group; or go all futuristic, with elaborate montage.

Suitable subjects

A still life group out of doors would be suitable for a gardener. Arrange the group carefully, and notice the position of the sun and how the shadows fall. Be sure the sun is shining, or the scene will look flat. Most groups look better if taken from a slight angle, rather than from dead in front. Focus carefully, making sure the principal object is the sharpest — it does not matter if the background is slightly out of focus. In any case the background should not be 'fussy'.

An indoor group is quite easy. Here you have the lighting completely under control. If you use artificial light you will need one chief light to one side, and a lesser one on the other to throw some light into the shadows. Again the background should be plain. For a small group a sheet of kitchen paper could be used, or if the group is of light coloured objects use new brown paper uncreased.

Adding an inscription

Another idea is to use a picture, or engraving as one's bookplate. This must be set up and copied. If it is framed it is best to remove it from the frame, to avoid reflections. It must be evenly lighted, and, I think, this is best done out of doors in the shade.

Now as to the inscription. In the last instance this can be drawn, lightly stuck to the picture, and the whole photographed. In the case of a still life group the easiest method is to make an enlargement. Then the words 'Ex libris', and the name can be drawn either directly on to the enlargement, or on a piece of white paper which can be stuck to the enlargement. The whole is then copied. From this final negative any number of copies can be 'run off'.

With regard to the lettering employed you will of course consult your own taste. Many people will like a simple style, or their own handwriting. Should you want something more elaborate you can buy a book showing different styles of lettering; some encyclopaedias give examples. The final print should be printed on a matt paper.

Your own bookplate apart, a specially made one for a friend would be a most acceptable present. For this you would naturally consider his or her hobby or interests, and design it accordingly.

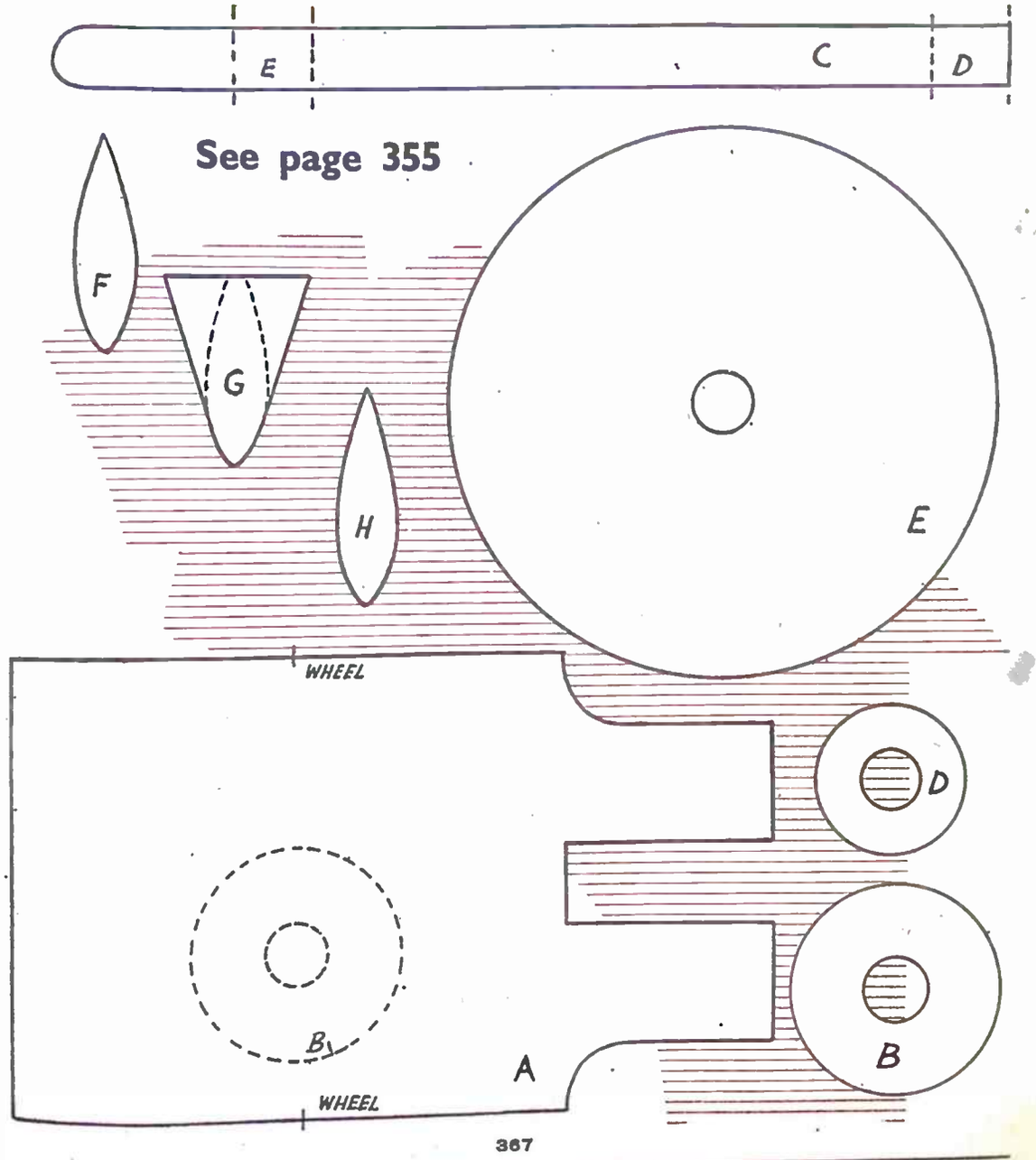
One word of warning; you will of course be careful, if copying a picture, not to infringe copyright. (G.P.)

An outdoor group for a gardener

Suitable for an amateur carpenter. Taken indoors by artificial light

★★★★★★★★★★★★★★★★★★★★
★ ★
★ **Keen modellers will welcome** ★
★ **the details in next week's** ★
★ **issue to make a Transporter** ★
★ **Bridge. There will also be** ★
★ **patterns for novelty Easter** ★
★ **Table Decorations and a** ★
★ **child's Toy, apart from** ★
★ **Collectors' Club and other** ★
★ **usual features.** ★
★ ★
★★★★★★★★★★★★★★★★★★★★

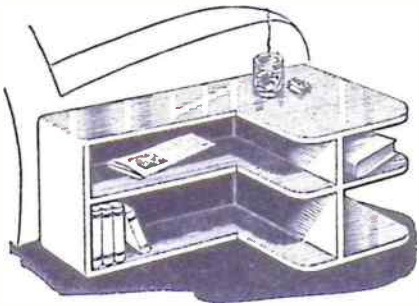
Patterns for Jet Plane Toy



Printed by Balding & Mansell, Ltd., London and Wisbech, and Published for the Proprietors, Hobbies Ltd., by Horace Marshall & Son, Ltd., Temple House, Tallis Street, E.C.4. Sole Agents for Australia and New Zealand: Gordon & Gotch (A'sia) Ltd. For South Africa: Central News Agency Ltd. Registered for transmission by Canadian Magazine Post.

SOMETHING FOR THE HOME?

Kits of materials with full details of construction



FIRESIDE TABLE/BOOKCASE
No. 3200 Selected wood panels, etc. **68/9**

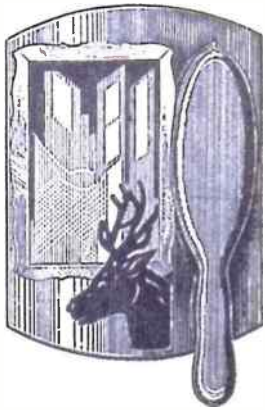
Make it with a Kit from

Hobbies

VIKING FIRESCREEN No. 3208
With ship in semi-relief.
13/6

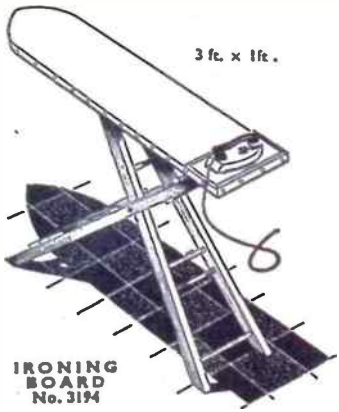
Hobbies Kits make it easy for the average handyman to complete a fine piece of furniture for the home. They have that individual touch which gives the maker a pride of achievement.

Kits obtainable from branches or direct (post free).



BRUSH SET No. 3000
With mirror, brush, etc. **10/6**

TABLE AND FIRESCREEN No. 3050
A dual-purpose kit.
37/6



IRONING BOARD
No. 3194
Folds into small space. A worthwhile project for the handy man
27/6

CONTEMPORARY TABLE No. 3212
With special screw-in legs. Made in an evening.
29/6

To Hobbies Ltd., Dept 99, Dereham, Norfolk.
Please send free 20-page booklet showing kits available and kit marked below

☐ Kit No. _____

P.O. for _____ enclosed.

Name _____

Address _____

_____