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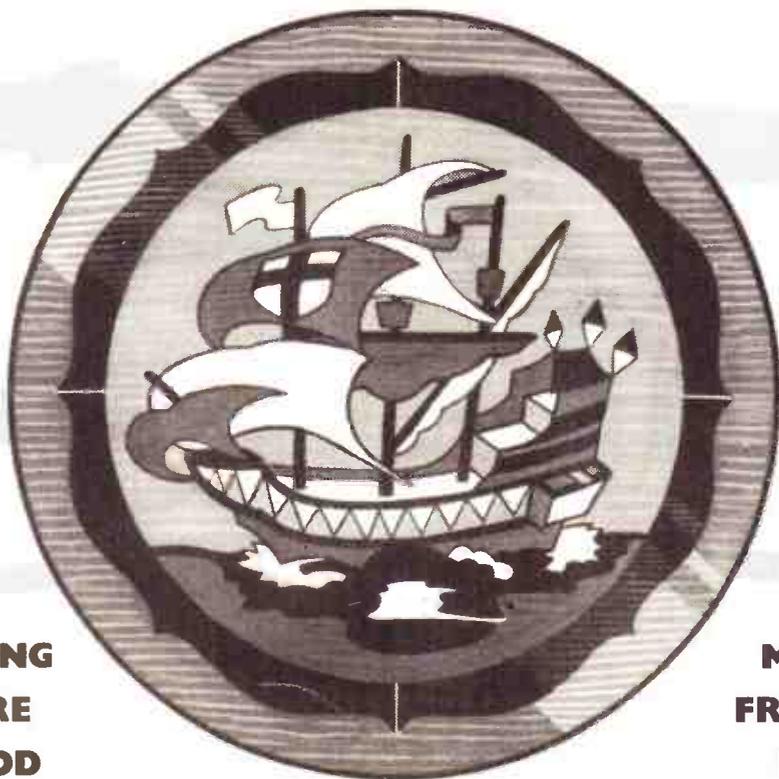
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All correspondence should be addressed to the Editor, Hobbies Weekly, Dereham, Norfolk

## GALLEON WALL PLAQUE



**CHARMING  
PICTURE  
IN WOOD**

**MAKE IT  
FROM FREE  
DESIGN**

305

FOR ALL HOME CRAFTSMEN  
Over 60 years of 'Do-it-Yourself' World Radio History

4<sup>10</sup>/<sub>2</sub>

# GALLEON WALL PLAQUE

**P**ICTURESQUE plaques made from polished woods for hanging on walls are very decorative, and go well with any furnishing scheme. The subject of our design, an old-time sailing galleon, lends itself admirably to this very pleasing effect.

The plaque is made on the inlaid principle of sections being cut out with a fretsaw in which a fine sawblade (OO or O) should be used. A specially prepared Hobbies kit can be purchased, which includes a panel of  $\frac{1}{4}$  in. wood for the backing piece and four selected  $\frac{1}{8}$  in. inlaid panels of wood of contrasting colours.

By this principle of fretsaw inlay, sufficient parts can in fact be cut from the panels to make four plaques. One will be laid out in the various woods as shown on the design sheet, and although the colours for the others will not be the same as those in the original, it is possible to match up another two to make quite reasonable plaques.

The backing piece (A) should be prepared first. It is cut to the outline shown on the design sheet. The framing pieces (B) are also cut from the  $\frac{1}{4}$  in. panel, but do not add these until later.

To cut the inlays, pin the four pieces of wood together with the whitewood uppermost. Be sure that the pins are outside the area of the picture. Now trace the design carefully on to the whitewood panel. Another method is to paste the design down on to the wood, but this is not generally recommended in view of the tendency to warp and the fact that the design has eventually to be cleaned off.

In cutting out the various parts it should be emphasized that this should be done piece by piece. Do not, of course,

cut round the circle as this would allow that portion to fall completely away from the surrounding areas through which the panels have been pinned. Make a start with the sea portion in the bottom of the picture and shown as medium dark on the design sheet. You will, of course, cut round the segment of the circle which is included in this piece and carry on right round the shape. The four shades of wood forming the sea are placed on one side after cutting out.

Then continue by removing the pieces of the pattern one after the other, working up the picture. For instance, after the sea piece has been cut, you will start on the dark piece adjoining and so on until the picture is completed. Stack the shapes in piles of four as cut. Any slight deviation from the lines of the pattern will not matter unduly because it will be appreciated that the four pieces, which are being cut at the same time, will to all intents and purposes be exactly the same and they must therefore fit the pattern when making up the picture no matter what shade of wood is being used.

Here it should be emphasized that you must maintain the cutting action so essential to this type of work — that is, to keep the saw upright. The cut-out pieces have to fit like a jigsaw puzzle, and it will be seen that if the saw is used at an angle the bottom sections will be of a different size and fit from the top ones and will therefore not match up and piece together properly.

When all the pieces of the picture have been cut, choose the ones which match those shown on the key given on the design sheet, and glue them piece by piece to the backing board on which the design has also been transferred. This enables you to see exactly where the various pieces are laid.

See that all the pieces fit together evenly and do not hurry with the gluing. Let the glue ooze up between the pieces so that the whole is well filled.

Now place a piece of paper over the picture and put the work under weights. When it has dried thoroughly, clean off the paper with a suitable scraper such as a Skarsten — a piece of glass will serve if you have no proper tool. Finish levelling off with various grades of glass-paper to very fine.

You may find that there are gaps in the surface which require filling in. A good method

Hobbies Kit No. 3302 contains panel of backing wood, set of 4 inlay panels; and screweyes for making the plaque. Price 8/10 from branches or Hobbies Ltd, Dereham, Norfolk (post 1/6 extra.)

is to use a mixture of colourless glue and sawdust of the wood colour required. The mixture should be principally sawdust with just enough glue to make the whole adhere. Rub this mixture well into the places to be filled and leave to dry thoroughly before levelling off.

This completes the main work and you should now provide a suitable finish for the picture. Apply white wax polish as used for furniture, and rub briskly with a soft duster. A proved method is to apply the polish with the finger tips, gently rubbing it in. Then glasspaper very gently over the surface, and apply polish again by the finger tip method.

To get a perfect result, do not hesitate to make up to as many as six applications of the polish, each followed by gentle smoothing with glasspaper and rounded off with a final polish. This will give the plaque depth and also make it shine. Polishing from time to time, after the plaque has been hung, will keep it in excellent condition.

Having achieved a satisfactory finish to the picture, the frame pieces (B) can next be added. As shown in Fig. 1 these are glued in position round the picture and weighted down until dry. It may be found desirable to apply the finish to these pieces (B) — by painting, staining and polishing, etc — before adding them to the backing piece, which will also be finished as desired.

Prepare the plaque for hanging with two screweyes and a length of cord. If it is to be hung from a rail, a fairly long length of cord will be required, but if it is to be suspended from a lower wall fitting, then it is preferable to stretch a shorter length of cord fairly tightly between the two screweyes so that when the picture is hung the cord is not seen.

For the extra pictures which you are able to make from the other pieces cut, these should be backed with suitable pieces of plywood, adding framing pieces in each case as for the original plaque.

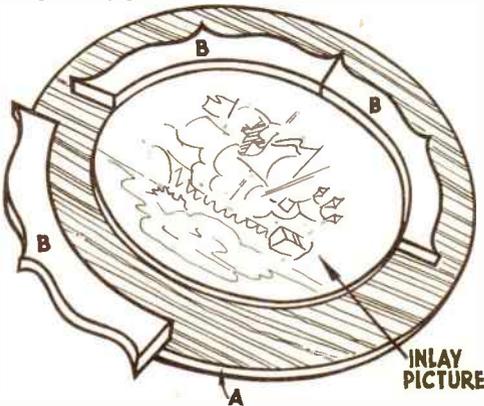


Fig. 1—Adding frame pieces.

# DISPLAYING YOUR PRINTS

ONCE the amateur begins to amass prints he wants an album to display them; but just to place them in an album isn't the way to make the best of them — the way a print is treated from the washing water to its final resting place in the album is important.

Some folk are impatient to have the print dried and 'albumed' in the shortest possible time, but it's a mistake to think that care ends with washing — it doesn't. A print can be dried quickly in a drying press, it can be heat-dried in the airing cupboard or near a fire — but many who have tried this feel that heat-drying loses some of the full effect of lustre surfaces, whereas natural drying in normal room temperature does not.

Heat-drying, without a proper drying press, tends to cause curling, especially with single weight printing paper — and to a lesser extent with double weight paper. Prints dried naturally have less tendency to curl.

A good method of natural drying is to mop off surplus water with fluffless blotting paper, and leave the prints to dry freely on sheets of old newspaper. Any slight curl in single weight paper — it shouldn't happen with double weight dried naturally — can be cured after drying by pressing them under books,

*By E. G. Gaze*

etc. Remember to place a clean sheet of paper between press and top print, and also see that no edge or raised projections of the press bear upon the print area to damage the surface. If these precautions are taken then limpish prints, without visual surface moisture, can be pressed quite safely if showing a slight tendency to curl at room temperature.

Prints left to dry naturally, overnight, are usually ready for any pressing by the next morning, except in very damp

weather or if left in humid conditions — but, as said above, natural drying doesn't encourage 'curling' even with single weight papers, so that pressing is of short duration, if necessary at all.

The dry print may need trimming. Some like an even white border all round, others do not — or the border may not be quite even on all sides. Except with small contact-sized prints, scissors do not make a good trimming tool. Even if you've pencilled a guide line on the BACK of the print the slightest wobble shows up at once when the print reaches the album. For trimming there are many excellent trimmers on the market of varying sizes and prices, complete with rules and squared edges to give a 'true' line. These can be had with a 'deckle' edge cut which can be very effective with smaller sized prints if you like the white border left around it. Or, you can use a safety razor blade, with a clean edged METAL rule — wood soon gets nicked and dented: the stropping type of safety blade is best, with a honed cutting edge and top-protected surface for holding.

## Mounting in the album

Your prints are now dried, free from curl, and trimmed — you need to affix them firmly in the album.

For contact-sized prints an album with pre-cut slots under which the print corners slip is convenient and simple. It does often, however, confine you to placing the prints in a regular pattern on each page — and you may wish to vary this, as an album often gains interest by having different pattern arrangements of prints.

Most amateurs, however, turn to enlarging and usually the bulk of their prints fall into one main size — half-plate (6½ins. by 4½ins.) or whole-plate (8½ins. by 6½ins.) or an occasional 10ins. by 8ins. Up to and including half-plate, mounting pastes or the mounting-corners (these can be bought in various colours, or transparent) are handy. Paste tends to be messy and slow in use, while mounting-corners allow the print to be moved again easily without much damage to print or album.

With whole-plate and larger, paste is rather awkward and messy. Rubber solution is cleaner, but may tend to cause print-staining with the passage of time — in any case it should be the clear solution sold for photographic use, and not the coloured variety used for other purposes. Probably the cleanest, and certainly the safest method of mounting larger prints is the dry-mounting one. A thin sheet of tissue, impregnated with



*'What's in there?' — an amusing 'natural' photographed on Ilford film*

shellac, is placed between print and album leaf and heat and pressure applied. The tissue melts and forms a seal between print and album leaf, effectively preventing any impurities in the leaf from affecting the keeping properties of the print.

Dry-mounting presses, complete with thermostat for maintaining correct heat, can be bought, but they are expensive even in the smaller sizes for amateurs. Special square plated irons are available at much less costly prices, or the ordinary domestic iron can be used quite satisfactorily on prints up to whole-plate and even 10ins. by 8ins. if care is taken over temperature and even pressure over the whole print surface — with a clean, dry paper sheet between iron and print, of course.

If the iron is too hot, then the tissue will adhere to the album leaf but not to the print: if iron too cold, or pressure not enough, then tissue will adhere to print back but not to the mount.

Double weight papers need more pressure than single weight.

The manufacturers of the particular tissue purchased will specify the best working temperature, usually around 140°F. It is wise to ensure that both print and album mount are dry, so leave them in a normally warm room a little time before starting to mount.

For dry-mounting it is useful to buy the loose-leaf type of album where each leaf can be removed and handled more easily under the press or iron than in having to manoeuvre a bulky book.

The size of the mounting leaf is important to display your prints to their best advantage, particularly with prints above small contact size.

With contact prints and enlargements up to half-plate, an album of generous leaf size will allow you to position two or more prints per page. Avoid a fixed regular pattern on every page, it gets monotonous — mix upright (portrait format) prints with oblong (landscape format) prints. Above half-plate size, prints generally show off best if kept one per page.

#### Album size

If you decide to have one print per page for concentrated interest per print, then the visual effect can be ruined or enhanced by the relative proportions of print and leaf and the position of the print on the leaf.

If the print is placed dead centre, with equal borders of album leaf all around, it tends to have a 'dropped' look: move it upwards so that there is less free space above the print than at the bottom and at once it becomes 'easier' to look at. Side spaces can generally be a little more than top space, but less than bottom space. These are only general

rules to be modified by individual taste, but it is always a sound rule to know the accepted guides and then experiment yourself with ideas.

As for visual variation, you will probably decide to mingle both upright and oblong prints (or even square ones) in the same album.

It is a good plan to work out the leaf size required on the basis of the upright format; this will save having to twist the album for viewing, and an oblong print will not suffer from wider side-spaces as easily as will an upright print.

A few trials with a print or so on paper will soon verify these hints. Remember, they are only a general guide, to be adapted to your own liking.

Albums vary in price and finish. It is wise to buy one with leaves guaranteed to be photographically free from chemical impurities. If not, and if dry-mounting is not used to seal back of print from the leaf, print staining may result in time. Some albums, as an added precaution, have tissue interleaves to protect the face of the print from the opposite page when closed.

#### Surface textures

A final tip for the print itself. Don't forget that printing papers come in a great variety of surface textures and finishes, and colour of paper base. It is wise to stick to one till you know it well, but then branch out and try the effect of different surfaces and bases. It all adds interest to your album, bromide papers with cool, deep blacks; chlorobromides with warm, rich blacks through to sepia with control of enlarging exposure time and developer dilution (as explained in the leaflet enclosed with the paper when bought). Try mixing your print 'finishes' — a warm sunlit scene may

come more alive on a warm toned, deep cream base chloro than on a cool black bromide. Portraits, snow scenes, gain from colder blacks of a bromide and a white based paper. You have a wide choice to alter the effect of a single print by choice of paper, surface texture and tint.

#### Adding titles

An album of anonymous prints won't be of much interest to a friend leafing through it — you'll need titles. If you have more leaf space beneath the print than at the top you avoid the 'dropped' look as mentioned earlier — you also have room for short titles. But keep them short and to the point; it adds interest to draw attention to any special point of interest in the print, say a Norman arch or the date of some ancient building. Titling should be neat and unobtrusive.

It is all about interest to the print, not to draw attention to your writing prowess! Most albums are of black, grey or fawn leaves; titling can be done in indian ink, or with white pencils obtainable from photographic dealers. You can buy title tabs which only need pressing to the mount to adhere. Some cut up the sticky type of economy label into title strips — but remember they may yellow with age and look dowdy, and ordinary ink (or even type) often weakens with age. These are small points but worth bearing in mind when planning your album to avoid annoyance later.

All this may seem a lot of trouble over a simple matter — getting your prints on show; but, remember, the final print was your goal from the moment you clicked the shutter — and a little time and thought to show it off to the best advantage is surely not wasted.

● Continued from page 309

## PAINTING ON GLASSWARE

for at least twenty-four hours. If the black is applied in outline form before the colours, it is again advisable to allow the same drying period.

You may give an added protection to the colours by an application of heat resisting varnish which is flowed evenly over the pattern, noting that it should not overlap the outlines anywhere or it will spoil the appearance.

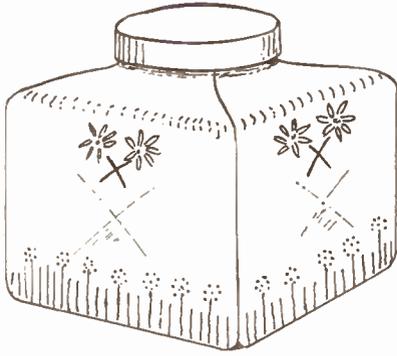
If any difficulty is experienced in making the colours adhere to the glass there are two possible causes for failure. Any remaining grease, due to insufficient washing, will make the brush skid without leaving paint and the obvious remedy is to wipe with methylated spirit. But a more common fault, not usually detected, is that some workers are too

near the glass and overlook the fact that their own breath causes a film of dampness on the glass. In such cases it is a good plan to fasten a handkerchief around the mouth for a mask as worn by nurses.

Finally, there is no need to prepare elaborate designs, and it is amazing how many small flowers can be formed by means of a series of well placed dots. Observation of any completed work, either painted or embroidered with silks, will reveal the effect of this treatment. Pictures of small animals or initials are easily painted and you will find that in this way a piece of plain glassware can be greatly improved.

(S.H.L.)

# HOW TO PAINT ON GLASSWARE



**P**AINTING on glassware is a fascinating hobby and can be accomplished quite easily provided you recognise the limits of your ability and you use the correct materials. At the same time, a little practice will soon give you confidence and efficiency, while the use of prepared designs will overcome most of the difficulties encountered by

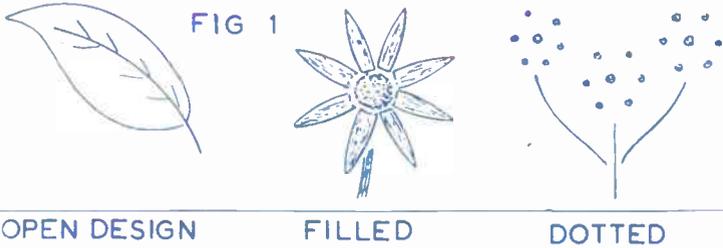
thinner and brushes for this work and all these may be bought from handicraft shops. It is wise to cover any working table with a sheet of old newspaper, having wiping-rags handy and a piece of glass for testing. An old knitting needle will help you to stir the paints ready for use.

Flower designs are extremely popular for glass painting but that is no reason why you should not prepare your own original geometric patterns, monograms, or animals. The beginner should first prepare a design on a strip of paper, attaching this to the inside of the vessel temporarily by means of Sellotape. You may copy floral patterns from wallpaper or embroidery transfers, marking out

take the additional precaution of wiping the glass with a little methylated spirit on a clean cloth.

The first colour to be applied is stirred and thinned and the article carefully positioned for painting. Some workers find a box of sand convenient for holding the ware since the sand can be moulded to any shape, with the glass to be painted lying on the edge of the box. The wrists are best supported either by the table or on a piece of wood laid across the top of the box so that the fingers are quite free for manipulating the brushes and any tension in the wrist is obviated (see Fig. 2).

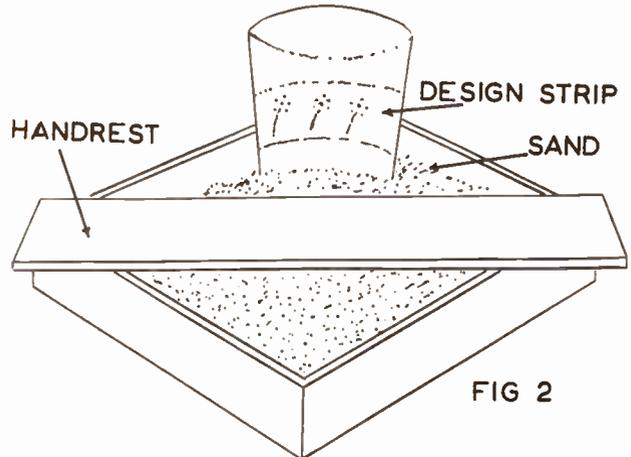
Take up a small quantity of paint on the brush, placing the first dab on your test piece of glass, then applying to the glassware according to your design. There is no special technique about this work except that it is necessary to work fairly quickly since the colours dry rapidly. For this same reason you must not make any attempt to retouch faulty strokes immediately and it is better to repaint these after allowing the first coating to dry. All parts of the pattern demanding the same colour should be treated first when the brush is cleaned by



the inexperienced worker. Plain tumblers, glass fruit bowls, mirrors and similar ware can be transformed quite daintily, while old glass jars, paste bottles and the like may be made into decorated gift containers or vases.

There are two distinctive methods of glass painting, one being what may be termed the open design and the other fully tinted, but both methods may be combined. The former involves the painting of a shape or design in outline black, probably a leaf with the veining, motifs or perhaps tiny animals. The other method, most often used, is where flowers or designs are painted in selected colours and with other tones added later to produce nicely graded effects. Here flowers and leaves are painted in their natural colourings but it is sometimes a distinct advantage to outline the whole with black paint. The particular nature of the design will determine whether this is necessary, but it should be remembered that it is also often the means of disguising the shaky work of the beginner. Specimens of the two methods are shown in Fig. 1.

You will require suitable paints,



carefully on your strip or tracing on transparent paper.

It is extremely important that there is no grease on the glassware or the paint will not 'take', so you are advised to wash thoroughly in warm, soapy water, followed by a good rinsing and perfect drying. Before commencing to paint,

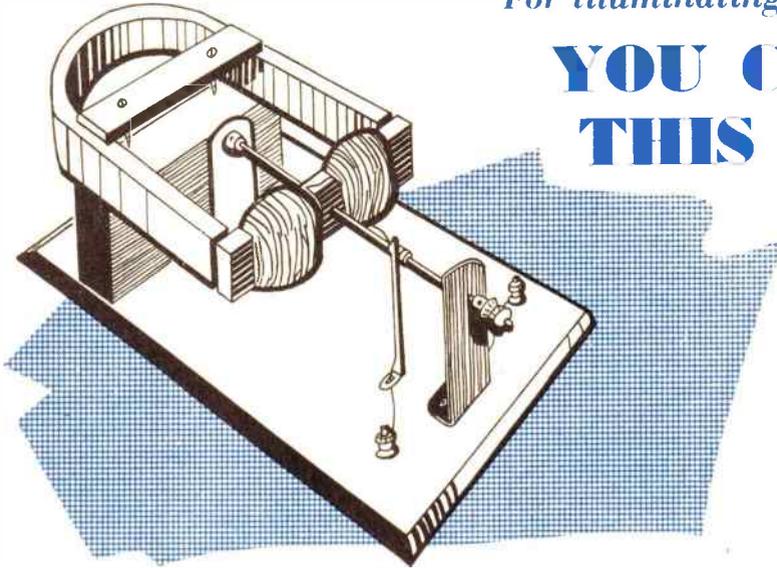
the thinner and wiped dry. Proceed to the next colour and so on until the entire pattern is completed.

The design itself may determine whether to use outline black, but if this is used the work must then be laid aside

● Continued on page 308

For illuminating your models

# YOU CAN MAKE THIS DYNAMO



Described by 'Modeller'

**A** WORKING model dynamo is not difficult to make, and can be used to produce current to illuminate a small toy of suitable type. It is particularly satisfactory for a working model

one may sometimes be found in scrap items such as an old magneto, obtained from a breaking-up yard or garage. It should be in reasonably good condition — at least able to support its own

quite easy, and requires no special tools.

The armature should be a tight fit on the axle, and it may be secured by soldering, or by punching the metal near the hole, to compress it upon the axle. Soldering is not difficult, if the axle and armature are cleaned, and heated with a spirit lamp or gas flame until solder can be melted directly on the joint.

### Moving parts

The axle runs in two brackets, which must be high enough for the ends of the armature to clear the baseboard. The armature should turn without wobble, and balance reasonably well. If one end is too heavy, it should be filed to correct this.

The slip ring is shown in Figs. 1 and 2, and consists of a small metal ring upon an insulated centre piece. The insulated piece, or sleeve, may be of wood, or glued brown paper, and it is a push fit on the axle. A short piece of brass or

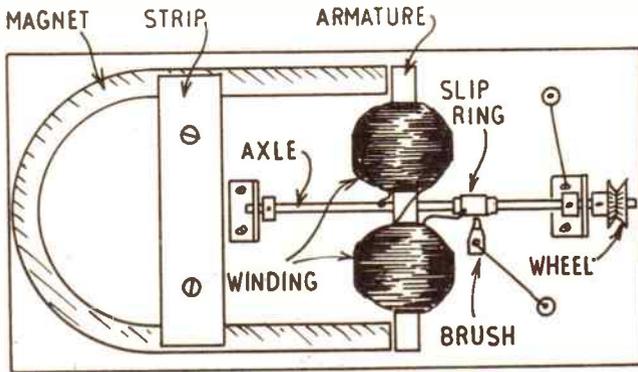


Fig. 1—The dynamo parts

operated by hand, as plenty of turning power will then be available.

Dimensions can be adjusted to suit the permanent magnet, which is the most important item. Other parts, especially the axle, collars, driving wheel and brackets, can be taken from constructional toy sets, if necessary.

### Magnet and armature

A horseshoe magnet is required, and if this is fairly large and powerful the dynamo will give a good current output. If a new magnet is not to be used, a suitable

weight, when placed in contact with an iron object.

The armature, also shown in Fig. 1, is a piece of iron about  $\frac{1}{4}$  in. to  $\frac{3}{8}$  in. thick and the same size as the space across the magnet poles. Metals other than iron are not satisfactory. If metal working tools are available, this piece can be sawn and drilled fairly easily. If not, a local garage undertaking repairs, or other machine repair shop, can cut this item, and drill it for the axle. Once the magnet and armature piece have been obtained, the remainder of the work is

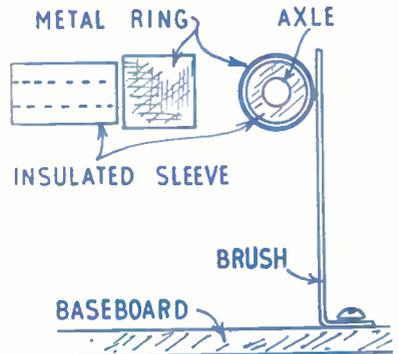


Fig. 2—Details of slip ring and brush

copper tube, or anything similar, will be satisfactory for the ring.

### Armature windings

Cotton covered wire is best, as the insulation may so easily be scratched from enamelled wire. The gauge is not critical, but 30 or 32 SWG is most suitable, so that a fairly large number of turns can be accommodated.

To begin, the end of the wire is soldered to the slip ring, as shown in Fig. 1. Turns are then wound tightly on one limb of the armature, to form a compact pile. When this is completed, the wire is taken

across to the other limb, and a similar pile is wound on. The winding is terminated by soldering the end to the axle.

As many turns as possible should be placed on the armature, for maximum output. At least 200 on each limb, making 400 in all, should be used if possible. Each section should be the same, to avoid unbalancing the armature. The ends of the armature must be left clear, so that it can rotate without the windings touching the magnet. All turns throughout both sections must be in the same direction, or the dynamo cannot work.

After winding, the turns should be painted with varnish, and allowed to dry, so that there is no possibility that the windings will become loose when the dynamo is running.

#### Magnet mounting

A block of wood is placed under the magnet, so that it is level with the axle and armature. A further strip of wood is then placed across the top, as in Fig. 1,

and screwed down, to hold the magnet in position.

The gap between the poles of the magnet and the armature should be as small as possible, provided the armature does not touch the magnet when rotating. Widening this gap even slightly will very much reduce the current obtained. The gap can be adjusted by loosening the screws a trifle and slipping the magnet along, or by altering the position of the collars on the axle.

#### Brush

This is a strip of thin metal, held to the baseboard by a wood screw. It can be cut from tin, though brass is better, and it bears upon the slip ring, as shown in Fig. 2.

A lead is taken from the brush screw to a terminal, as in Fig. 1, a second terminal being wired to one axle bracket. Leads from these terminals are taken to the bulb or lights to be used.

It is not feasible to run the dynamo by driving it from an electric motor, except

for interest, because the current output would be less than the current taken by the motor.

If carefully made, and freely running, the dynamo can be used with some model steam engines of fairly powerful type.

One of the best methods of driving is by hand, with a suitable step-up gear. With a very small pulley on the dynamo axle, and a large driving pulley, a single belt drive will be sufficient. If a really large driving pulley is not available, a two or three stage step-up gear will be necessary, to obtain enough speed.

The dynamo should light a small bulb of the .06 amp type if the axle is spun sharply between the fingers. Ordinary torch bulbs can also be used, but will require a higher running speed. The number of bulbs which can be lit depends upon the size and power of the magnet, the number of turns on the armature, and the speed which can be provided.

## How to make a Siphon Fountain

THE fountain in a jar described here will prove an interesting and very instructive scientific novelty. Furthermore, the miniature fountain will continue to play for as long as the tumbler reservoir is kept replenished with water.

To make the apparatus you will require a pickle jar with a cork large enough to fit it tightly, a one foot length of  $\frac{1}{4}$  in. internal diameter glass tubing and a piece of  $\frac{1}{8}$  in. internal diameter glass tubing about 18 ins. in length.

Begin by holding the thicker piece of tubing between both hands and heating near one end in a hot gas flame. While the heating is in progress gently rotate the glass between your fingers. When the glass is glowing red remove it from the flame and draw the soft part out to form an even, narrow neck about  $\frac{1}{8}$  in. in diameter. When the glass has cooled, carefully file a nick in the constriction and break off at that point to form a neat jet on the end of the wide bore tube.

Prepare the thinner tube by bending it twice, in regions about 3 ins. and 5 ins. from one end, to form a handle shape. The glass tubing is easily bent by heating until it is glowing red and soft and then letting the weight of one free end pull the bend into place. Try and ensure that the two bends are in the same plane, so that when the glass is cooled you can lay the bent tube flush with the table.

It will now be necessary to bore two holes in the cork in which to insert the two pieces of prepared glass tubing.

Make the larger hole in the centre of the cork and make the other hole a  $\frac{1}{4}$  in. to one side. Red-hot knitting needles or nails can be used to bore the holes. Make sure that the borings are at right angles to the flat ends of the cork.

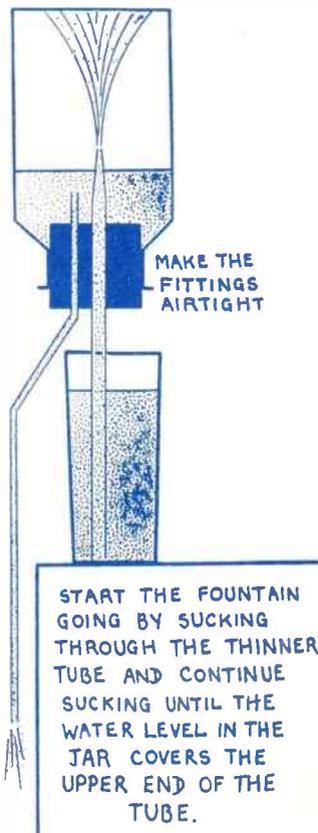
Insert the 'bent' end of the thin tubing and the jet end of the thick tubing into the cork in such a manner that when the cork is pressed into the pickle jar the tip of the jet will be about 1 in. above the top of the thinner tube. The lower end of the thin tube should be below the lower end of the thicker tube. All the fittings must be airtight.

Dip the bottom of the jet tube into a tumbler of water and suck the air out of the pickle jar through the long thin tube. After a moment a pretty fountain will play from the jet. When the water level in the jar is above the top of the long thin tube, stop sucking and leave the apparatus. The fountain will continue to play inside the jar until the water in the tumbler has all been sucked up.

The apparatus is essentially a glass siphon with a partial vacuum situated half way along it. As water flows from the thin tube more water is sucked upwards from the tumbler and since it has to pass through the narrow jet, it rises upwards in the jar as a fine fountain.

You can prove that a partial vacuum exists inside the jar if you place a finger over the end of the thin tube while the fountain is playing. The fountain will continue to play for a short time.

(A.W.)



# Tooth Paste and Brush Holder

Designed by  
H. Ridgway

THIS attractive holder for a tin of tooth-paste and tooth-brush is a delightful novelty easily made with a fretsaw. The tin of dentifrice is held in place behind the figures, and the brush itself is held by the spring jaws of the fish. Neatly finished in bright colours, this is an excellent idea for an appealing and individual gift.

All the plans shown are actual size, so the worker has merely to transfer the various shapes on to the appropriate thicknesses of wood indicated.

To make the holder, first copy the pattern (Fig. 1) on tracing paper, and then transfer it, by means of carbon paper, to a piece of wood  $\frac{3}{8}$  in. thick. The arrow indicates the direction of the grain.

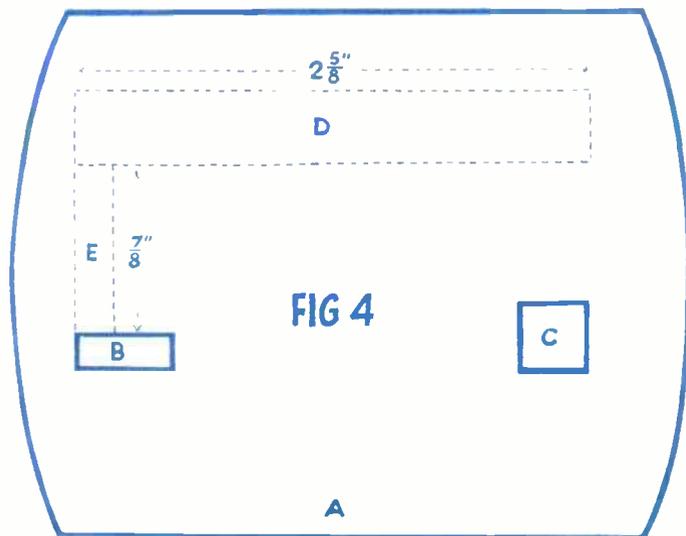
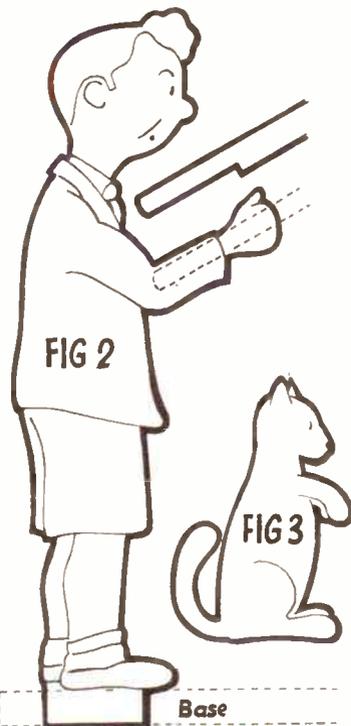
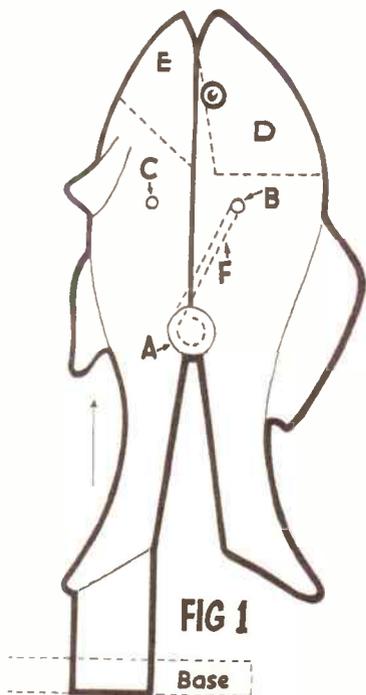
Before cutting out the fish, take a spring clothes peg,  $2\frac{1}{2}$  ins. in length, and separate the spring from the wooden pieces. Lay these on the pattern of the fish, and check that the hollow for the spring coil (A), and the holes for the spring arms (B and C) correspond with those on the peg. If necessary, make adjustments on the pattern, and then cut out the fish.

The holes (B and C) are made with a suitably sized drill. The blocks (D and E) which grip the tooth-brush, and indicated by the dotted lines, are copied on to a piece of wood,  $\frac{1}{2}$  in. thick, cut out and secured with glue and two fretwork nails. Drill the blocks before nailing, to prevent splitting. Smooth the fish thoroughly with glasspaper, and attach the spring (F).

● Continued on page 313



ALL PATTERNS  
ARE FULL SIZE



*It really climbs*

## A 'COTTON REEL' TANK

THE uncanny behaviour of the little climbing toy traditionally known as 'the tank' usually sets off a schoolboy craze wherever it is introduced. Its construction requires hardly any skill, and it can be made by a boy in half an hour.

'baffle' for the unwinding rubber band. The approximate length can be judged from the illustration. The free end of the rubber band is threaded through the prepared cotton reel and held in place on the opposite side with a piece of matchstick or a drawing pin. The tank will now

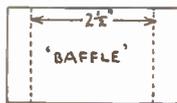
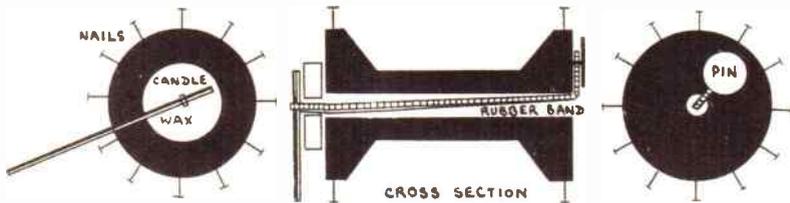
be complete and ready for its trials.

Prepare the tank for action by turning the stick a few dozen times in order to wind up the motor. Set the toy down on the floor and watch it begin to crawl slowly away. The slow movement is caused by the friction between the candle wax and the wooden side of the tank. If there is insufficient friction the motor will unwind suddenly, causing the toy tank to jump about violently, out of control.

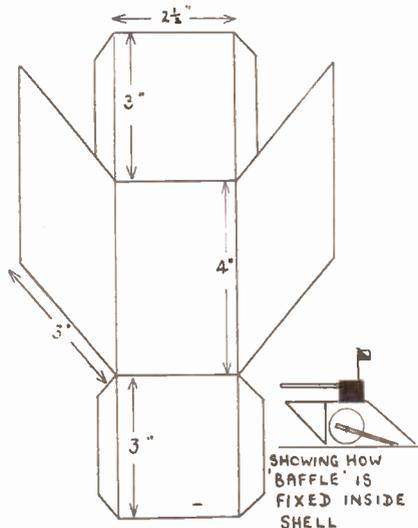
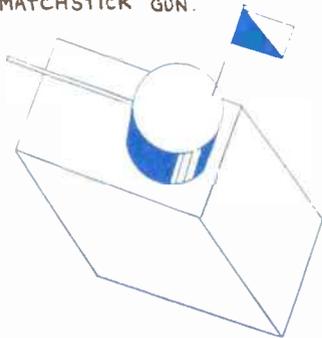
If you have made your tank well it will be able to climb over blocks of wood at least half its own height. Wind up the toy and set it against such an obstacle. It should advance towards the block and begin gradually to lever itself over in a truly remarkable manner.

Two model tanks can be set against one another in a trial of strength. Quite often the victor will completely overturn its opponent.

A more realistic, though less active, version of the toy can be made if desired. From stiff paper a 'shell' in the shape of a real tank can be constructed. Glue a piece of paper upright across the inside of the shell to act as a 'baffle' for the tank motor to push against. Add a few interesting details, such as a cork gun turret with a matchstick gun and paper flag. Place the gun turret well back and paint the model with water-colours. A cotton reel 'tank' made as already described, acts as motive power and is placed underneath the shell where it can push against the paper 'baffle'. Two or three such models will look well advancing slowly across a smooth table top, but unfortunately, they will be without the climbing power of the simpler toy tank. (A.E.W.)



A MORE REALISTIC VERSION WITH A CORK GUN TURRET AND MATCHSTICK GUN.



● Continued from page 312

## Paste and Brush Holder

Use a fairly long cotton reel from which the paper labels have been removed with the aid of a sharp penknife. Make claws for gripping by securing the cotton reel in a vice and driving twelve pairs of small cobbler's nails firmly into the reel rims. Take care to space out the nails equidistantly, and to place each pair of nails accurately in line across the cotton reel. It will be necessary to pencil out the positions for the nails in advance.

Make the motor as follows. Cut a  $\frac{1}{4}$  in. thick slice from the base of a candle and bore a neat hole through the centre. Take a short strong rubber band, pass it through the hole in the candle wax and hold it in place with one end of a thin wooden stick or broken piece of knitting needle. The stick must be just long enough to reach the floor and act as a

small upholstery nail forms the eye. Next, copy the figures of the boy and the animal (Figs. 2 and 3) on to a piece of wood, which is  $\frac{3}{16}$  in. thick, and cut them out. The dotted lines show the position of the fishing rod, which is a piece of  $\frac{1}{8}$  in. dowelling,  $2\frac{3}{4}$  ins. in length. The end is filed where it is attached to the arm, as shown in Fig. 2. Do not fasten the rod to the arm at this stage. The animal is glued to the leg of the boy when the holder is assembled.

The base (Fig. 4), is copied on to a piece of wood,  $\frac{3}{16}$  in. thick, and cut out. Cut out also the slots (B and C). The back piece (D) is  $2\frac{3}{4}$  ins. long and  $1\frac{1}{2}$  ins.

high. It is cut from a piece of wood,  $\frac{3}{16}$  in. thick. Secure it to the base with glue. The small block (E) is  $\frac{1}{2}$  in. high and  $\frac{3}{16}$  in. thick, and is glued in place between the boy and the back piece.

Place the boy and the fish temporarily in position on the base and glue the rod behind the boy's arm, with its end resting on the mouth of the fish. Remove the two figures, and apply a coat of size to all parts. When this is dry, enamel in suitable colours. A small tin of tooth-paste is held between the figures and the back piece. Press the tail of the fish to open its mouth, and place the tooth-brush between the blocks (D and E).



**B**UTTERFLIES are the most beautiful of all insects. Though they resemble moths in shape, they are easily distinguished from them by the 'knobs' on the ends of their antennae or feelers, and by the greater brightness of their colours. Also they fly only in the daytime, while moths fly by night. The greatest beauty of butterflies is in their wings, which are coloured on both sides while in moths only the upper side is coloured.

## LEPIDOPTERA

— By R.L.C.

Butterflies' wings are separate from each other. They do not fold up when the insect rests, but stand straight up so that more of the under part can be seen than of the upper.

Butterflies live mostly on the sweet juices of flowers. They have a long hollow proboscis or tongue, which, when not in use, is coiled up under the head. When they wish to get the honey in the deep cup of a flower, they straighten this out, thrust it down into the flower, and suck the honey through it.

Like most other insects, butterflies pass through three different stages or changes of life. The female deposits her eggs on the leaves of such plants as the caterpillar usually feeds on, and leaves them to be hatched by the heat of the sun. Those laid in summer are sometimes hatched in a few days, but in cool countries eggs laid in autumn are often not hatched until the next spring.

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Before turning into a butterfly the caterpillar becomes a pupa or chrysalis. If the weather be hot the chrysalis case bursts open in eight or ten days, but sometimes this does not take place until two or three weeks.

There are many different kinds of moths. They vary greatly in size, form and colour. The Owl Moth of Brazil measures eleven inches across the wings, while others are less than half an inch.

The Hawk Moth is so called from its swift and strong flight. It is sometimes called humming-bird moth because it makes a noise in flying like that of the humming-bird. In France children call it the bird-fly. Many Hawk Moths are so large and of such bright colours that they might easily be mistaken for birds as they fly from flower to flower in the dusk of evening.

The Clothes Moth, the larva of which eats clothing, carpets and furs, is among

the smallest of moths.

Moths and butterflies belong to the order Lepidoptera, or scale-winged insects.

Collecting Lepidoptera is a popular hobby throughout the world. Most species are depicted on stamps, labels, cigarette and trade cards. The various issues form an interesting collection, and, if accompanied with appropriate notes concerning breeding habits, etc., can be put to practical use. So keep the following short check-list handy for reference.

'Stamps: British Honduras 1953. 25c. blue and brown — Blue butterfly — 1/7 mint. Chile 1948. 75 values depicting various fauna. Finland 1954. Various insects. Herm Island (local) 1954. Various fauna. Hungary 1954. 10 insect designs — 5/- used. Italy 1953. 25 1. violet — Moths and Chrysalis — 6d. mint. Lebanon 1930. 4 pi. Sepia — silkworm, larva, cocoon and moth — 2/- mint. Mozambique 1953. 20 Butterfly designs — various prices. Netherlands 1950. Various insects. Portuguese Guinea 1953. Various insects. Switzerland 1950 to 1956. Various "PRO JUVENTUTE" sets depicting Lepidoptera.'

During the past three years Belgium, Czechoslovakia and India have issued many beautiful match labels featuring moths and butterflies, most of which are catalogued 1d., 2d. and 3d. each.

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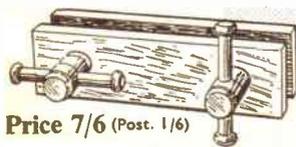
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# RECESSING THE DOOR MAT

**T**HE most kicked-around thing in the home is the door mat. Yet it should not be so, for it is one of the most-used objects in the well-run home.

The answer is to recess the mat into the floor just inside the doorway so that anyone entering must pass over it and will therefore automatically use the mat.

The first step is to take up or roll back linoleum to reveal the floor boards. Now study the nail markings that traverse the floor boards at right angles and in a straight line across the floor. These nails go through the floor boards to a fixing of a centre line with the run of the joists. In other words the nail marks indicate the centre of the joists hidden below.

Most floor joists are 2ins. wide and at least 4ins. deep. It follows that if a saw

cut is made through the floorboards, 1in. away from the row of nail markings, the cut will come right on the edge of the joist side.

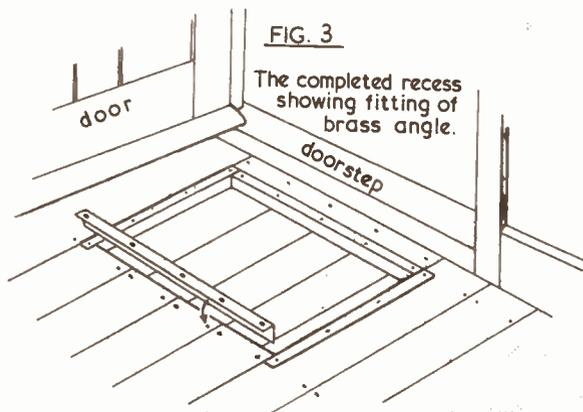
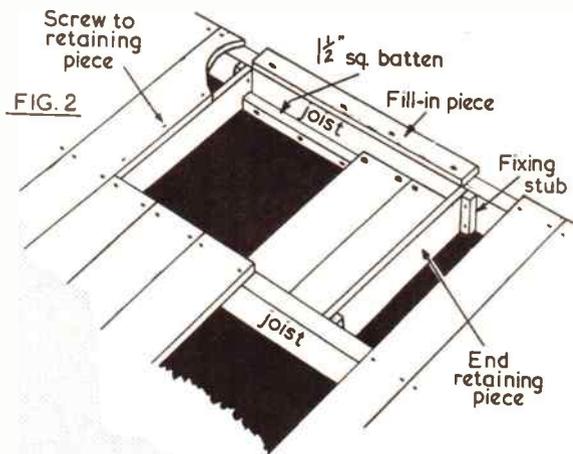
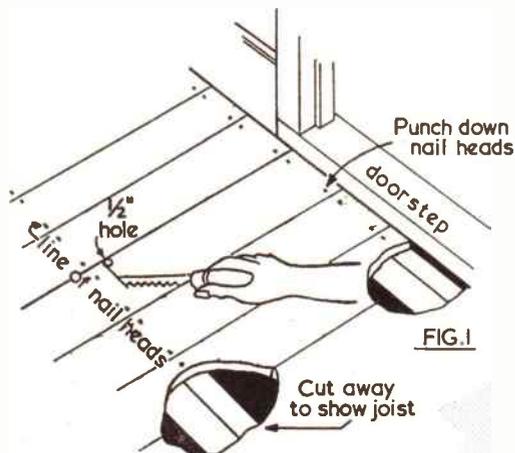
However, it may be that the nail markings are not exactly over the centre line of the joists below. So, to be on the safe side, drill a  $\frac{1}{2}$ in. hole at a centre point  $1\frac{1}{2}$ ins. away from the nail markings (see Fig. 1).

Now commence the cut with a pad-saw from the hole. Cut towards the joists until you locate it and from then on keep your saw cut straight by abutting the blade to the joist side below. After you have made a cut of about 4-6ins. you can complete its desired length more easily by inserting and cutting with an ordinary wood saw.

This first cut will of course be determined by the size of the mat that is to fit into the finished recess. Naturally, you want as good a fit as possible. You may find that your mat is of a size that prevents it fitting into a recess that is made the best way, viz, by fitting it between two runs of joists. In that case it is better to invest in a new mat of a size that will fit. To find the width of the mat you will require, measure between two rows of nail markings and deduct 3ins.

As shown in Fig. 1 a joist is always to be found adjoining the outside wall (near door step) and this is the position your recess should work from.

This first saw cut will, in most cases, be the only cut to make across the floor. By this is meant that if possible, according



to the mat length, make the cut to start and finish at the joins of floorboards. Removing the boards for the recess is then a simple matter. With a nail punch, drive the nails at the joist fixing near the doorstep, right through the floor boards and into the joist below. The floor boards are then free and can be lifted out.

Fig. 2 shows the simple fitting of the supports to hold the dropped recess.

Battens of  $1\frac{1}{2}$ in. square deal are first screwed on the inside edges of the revealed joists. They should be fixed so that their top edge is approximately  $1\frac{1}{2}$ ins. below the floor board level.

End retaining pieces are now fitted. These should be of 1in. thick deal and of a depth equal to that of the joist. They are held in place by short stubs of the  $1\frac{1}{2}$ in. deal, nailed vertically to the joists,

● Continued on page 318



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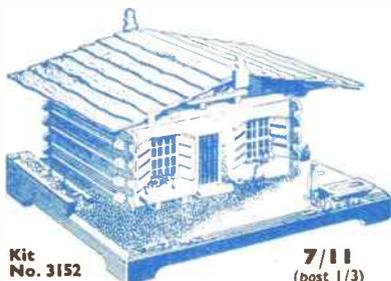
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## A space-saving idea

# FILLING THAT RECESS

IN many houses, particularly the smaller ones, there is often a waste of space in the nature of narrow 'alcoves' formed between the chimney breast and an adjoining wall. Quite often this awkward feature is duplicated in the bedroom above if the chimney stack protrudes. With a little simple handwork this space can be utilised to advantage and the following are just a few suggestions how this may be done.

A recess can be used to accommodate neat removable bookshelves. The shelves

face of the chimney breast. The battens are drilled to take  $\frac{3}{8}$  in. woodscrews spaced 3 ins. apart and these positions are then transferred to the wall by placing the battens between the drawn lines and scribing through the holes with a sharp pencil. Holes are drilled in the wall at these positions and are then plugged with asbestos fibre to take the fixing screws.

The recess in the bedroom will be utilised to better advantage if a hat rack and coat hanger rail is fitted as shown

hardwood and the frames are fretted out. The  $\frac{1}{2}$  in. diameter dowel holes and the holes for the fixing screws are drilled and both frames are trimmed and glass-papered.

The length of the  $\frac{1}{2}$  in. diameter dowels will depend on the width of the recess but each should make a fairly snug fit. They are glued in place in the appropriate holes in the end frames and when set the whole unit is enamelled or varnished. The rack is screwed to the walls, using the method described earlier. Five feet

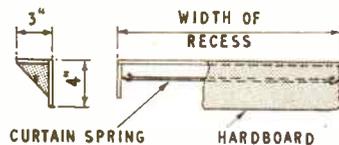
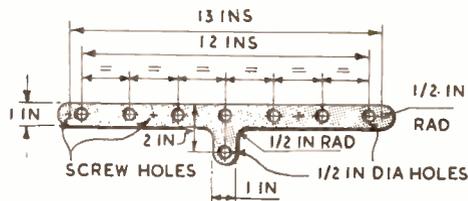
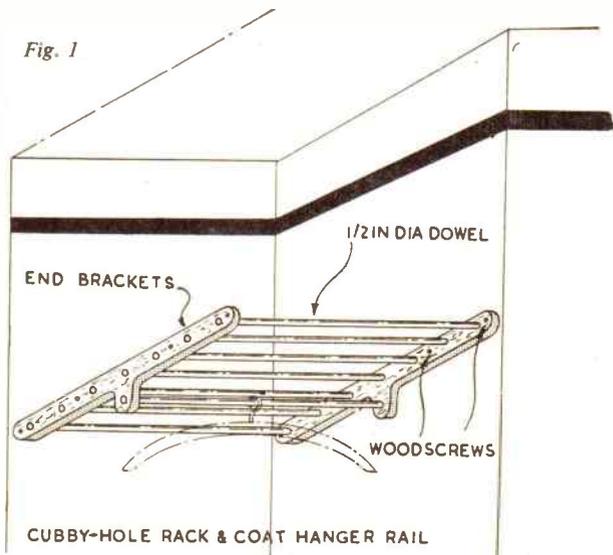


Fig. 2

Fig. 3

themselves are of  $\frac{3}{8}$  in. plywood cut so that they are level with the front of the chimney breast, and make an easy but flush fit inside the recess. Along the front edges of each is screwed a 1 in. wide strip of white Perspex  $\frac{1}{8}$  in. thick. Round-headed nickel-plated woodscrews spaced about 4 ins. apart make a neat job. Each shelf is lined with linoleum to match that already laid in the room. Good quality wallpaper can also be used but, of course, modern plastics will provide the best results when bonded to the plywood in the usual way.

Supports for the shelves take the form of thin battens of ply or hardwood  $\frac{3}{8}$  in. by  $\frac{3}{8}$  in., the length of which must be equal to the depth of the recess. They are secured to the wall with screws. Pencil lines  $\frac{3}{8}$  in. apart, denoting the depth of the battens, are drawn on each wall of the recess at the requisite distance apart (about 15 ins. is suggested) parallel to the floor; they must also be 'square' to the

face of the chimney breast. The shapes of the two end frames are given in Fig. 2 but dimensions will vary in individual cases, particularly where the length is concerned. These are transferred directly to  $\frac{3}{8}$  in. plywood or

from floor level is a convenient height.

Some kind of covering will be required for the whole alcove if this type of fixture is used and it is suggested that, for simplicity, curtain material hung from a pelmet fixture near the ceiling will be most suitable. The pelmet can be made from  $\frac{1}{2}$  in. hardboard as shown in Fig. 3. It is enamelled and is either screwed to the ceiling through the top piece or to the walls through the end pieces. (G.A.)

● Continued from page 316

## Recessing the door mat

as shown, and are located so that their inside edge is flush with the long edge of the floor board forming the side of the recess. The floor board edge is then screwed to the top edge of the retaining piece.

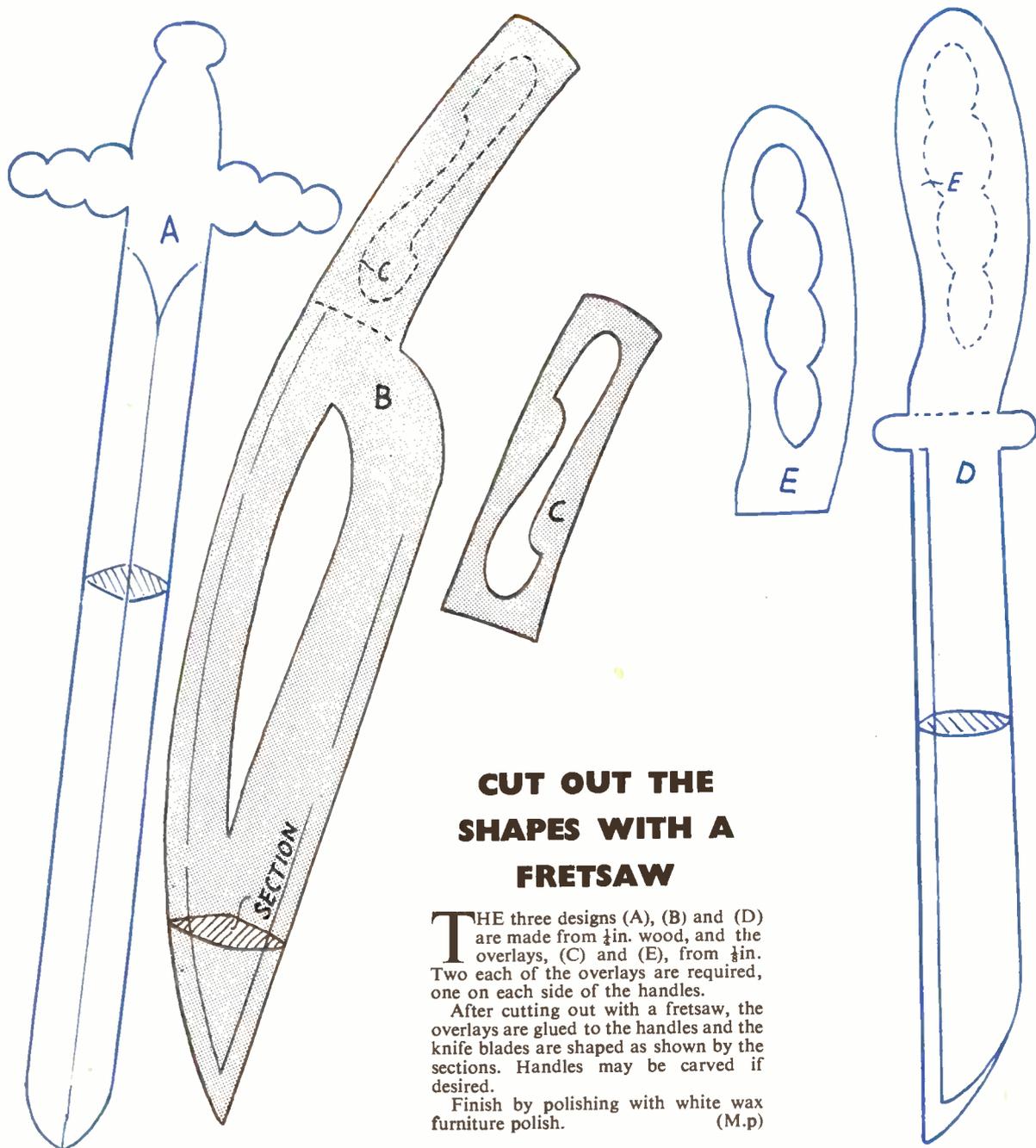
Note that in Fig. 2 the floor boards shown removed to the right have only been so done to show the fitting of the retaining piece and in practice these boards would still be in place.

It only remains to cut to size and fit between the batten lengths, the cut

floorboards that have been previously removed and the recess is now complete. A gap is left near the door step between the two extents of the cut floor boards. This should be filled in with a length of deal, the same thickness as the floor boards and cut to a width of that between the door step and the recess edge.

As shown in Fig. 3, the completed recess can be improved by enclosing the edges with angles made of sheet brass. This can be fitted before or after the linoleum has been relaid. (E.C.)

# PAPER KNIVES IN WOOD



## CUT OUT THE SHAPES WITH A FRETSAW

THE three designs (A), (B) and (D) are made from  $\frac{1}{2}$  in. wood, and the overlays, (C) and (E), from  $\frac{1}{4}$  in. Two each of the overlays are required, one on each side of the handles.

After cutting out with a fretsaw, the overlays are glued to the handles and the knife blades are shaped as shown by the sections. Handles may be carved if desired.

Finish by polishing with white wax furniture polish. (M.p)

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## BUILDING COSTS FROM ABOUT £7

These plans contain all the information needed to build the canoe and its accessories. The main frames and other shaped parts are drawn full size for tracing direct on to the wood. There are plenty of constructional diagrams, with step-by-step instructions, and a detailed material list. Accessory instructions include the making of paddle, spray cover, trolley, rudder, sailing gear, etc.

All of these canoes are of the decked kayak type and are primarily paddling craft, but sail is useful as an auxiliary and can add to the fun of canoeing. If sailing capabilities are particularly required, PBK 20 is the best selection.

A canvas canoe can be built by the novice with limited equipment, and the average handyman can complete the job in about 40 hours. The structure consists of widely-spaced laths on cross frames, covered with a fabric skin. There are no difficult joints or awkward work. Plywood skinned canoes need more skill and a larger tool kit.

Building costs range from about £7 (for the PBK 10). We do not supply materials for building, but addresses of firms who do so are included with the plans.

### DETAILS OF PLANS AVAILABLE

#### RIGID CANVAS-COVERED

**PBK 10.** Single seat, 11 ft. long, 28 in. beam, normal max. load 300 lb. The shortest satisfactory canoe. Economical in size and building costs. Room for lightweight kit.

Price 11/-

**PBK 14.** A roomy single for the big man, or a two-seater for an adult and child, or two young people. 14 ft. long, 29 in. beam, normal max. load 500 lb. Popular tourer.

Price 12/6

**PBK 15.** Single seat, 14 ft. 6 in. long, 26 in. beam, normal max. load 400 lb. The enthusiast's fast touring craft. Safe and stable. Suitable for any waters.

Price 12/6

**PBK 20.** Two-seat, 15 ft. long, 32 in. beam, normal max. load 600 lb. Stable and seaworthy. Easily paddled and a good performer under sail. Popular with scouts and youth clubs.

Price 12/6

#### RIGID PLYWOOD-SKINNED

**PBK 16.** Two-seater. 16 ft. long, 32 in. beam, normal max. load 700 lb. Flat-bottomed. Safe and robust. Popular for local hire on sea and river. May be left afloat. Price 12/6

#### FOLDING

**PBK 24.** Single seat, 11 ft. long, 28 in. beam, normal max. load 300 lb. Similar lines to PBK 10 but longer cockpit. Only canoe which packs into one bag small enough to go on bus.

Price 12/6

*From branches or direct (post 9d. extra)*

**HOBBIES LTD** (Dept 99) Dereham, Norfolk

PIECES B. CUT TWO  
OF EACH 1/4 in.

B

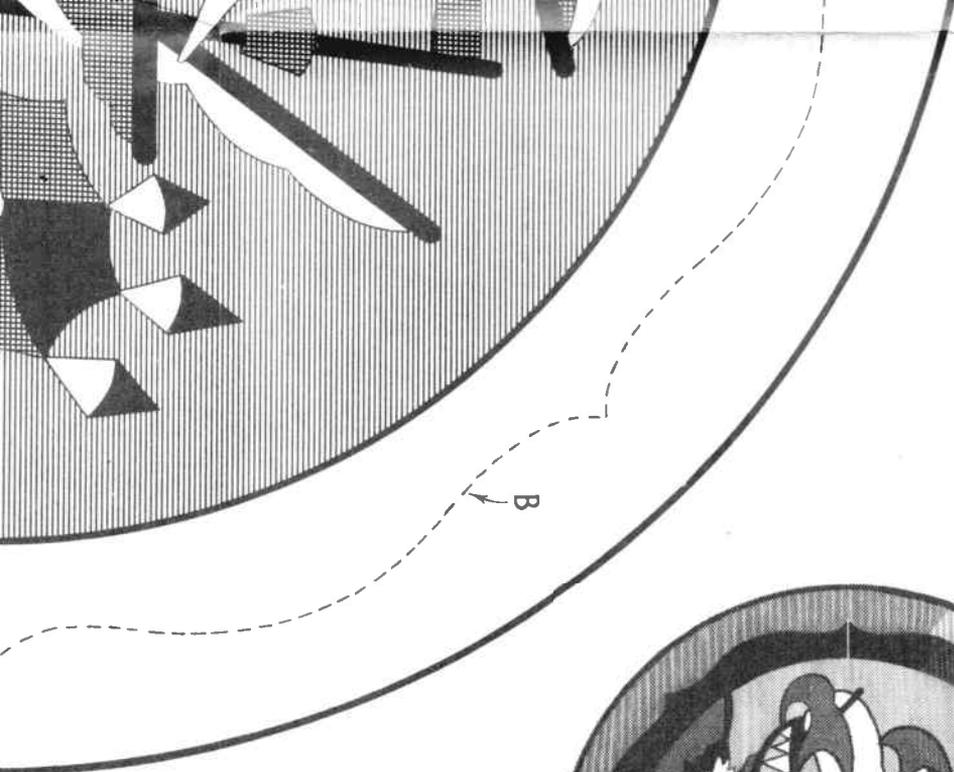
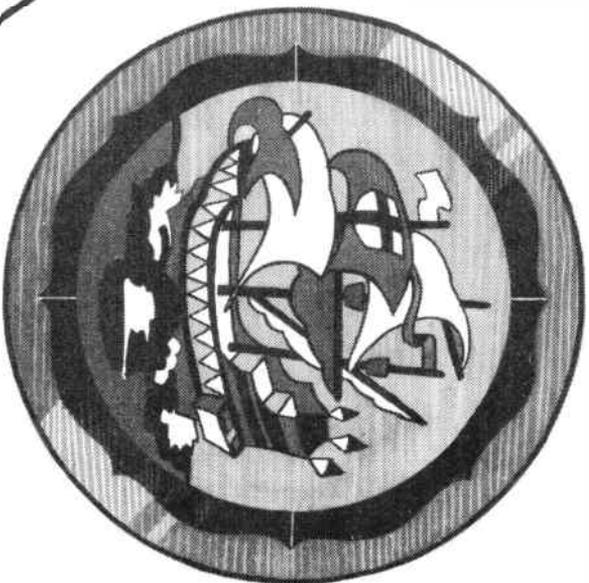


**DESIGN**

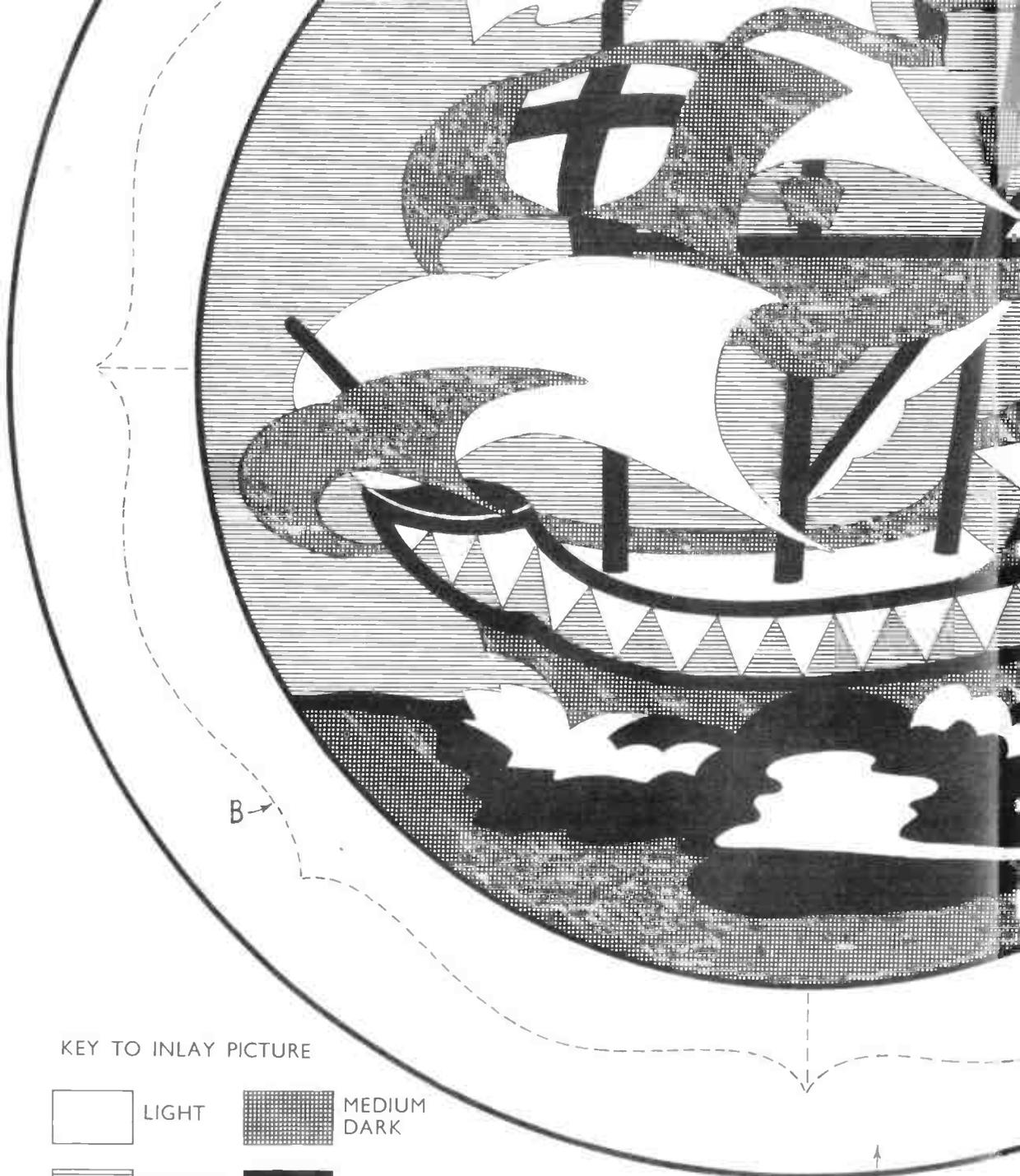


SIZE: 10 $\frac{1}{4}$  ins. DIA.

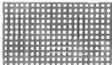
# AN INLAID WALL PLAQUE 'THE GALLEON'



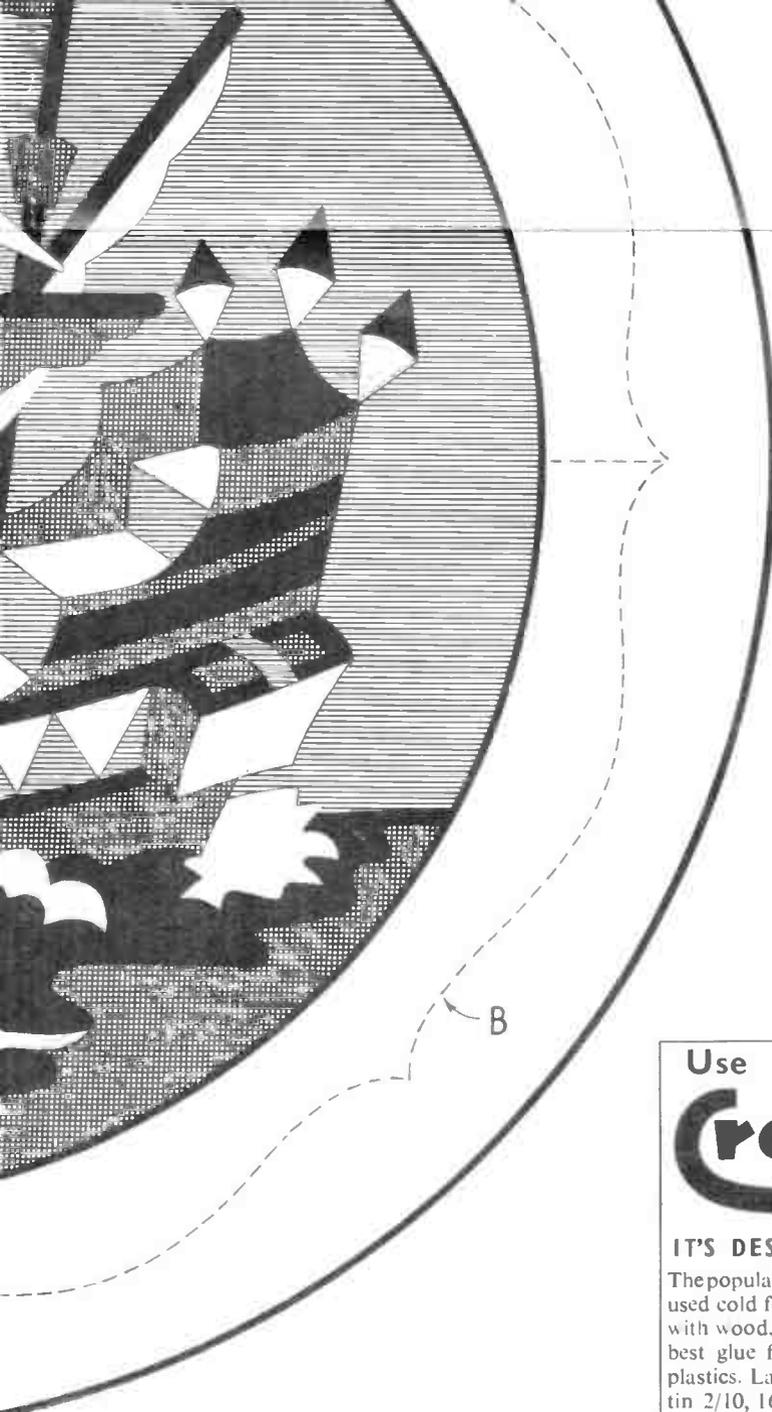
MATERIALS FOR MAKING  
DESIGN IS SUPPLIED BY  
HOBBS LIMITED, DEREHAM,  
NORFOLK.  
SEE INSTRUCTIONS ON APPLICATION.



KEY TO INLAY PICTURE

	LIGHT		MEDIUM DARK
	MEDIUM LIGHT		DARK

PIECE A. CUT ONE 1.4 in. T



A KIT OF MATERIALS FOR MAKING  
THIS DESIGN IS SUPPLIED BY  
HOBBIES LIMITED, DEREHAM,  
NORFOLK.  
PRICE ON APPLICATION.

Use

**Croid** UNIVERSAL

**IT'S DESIGNED FOR THE JOB**

The popular general purpose liquid glue, used cold for all making and mending with wood, leather, card, etc. The best glue for sticking laminated plastics. Large tube 1/2, 8 oz. tin 2/10, 16 oz. tin 4 6



AVAILABLE FROM ALL BRANCHES OF HOBBIES LTD

in. TO OUTLINE.

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