HOBBIES WEEKLY

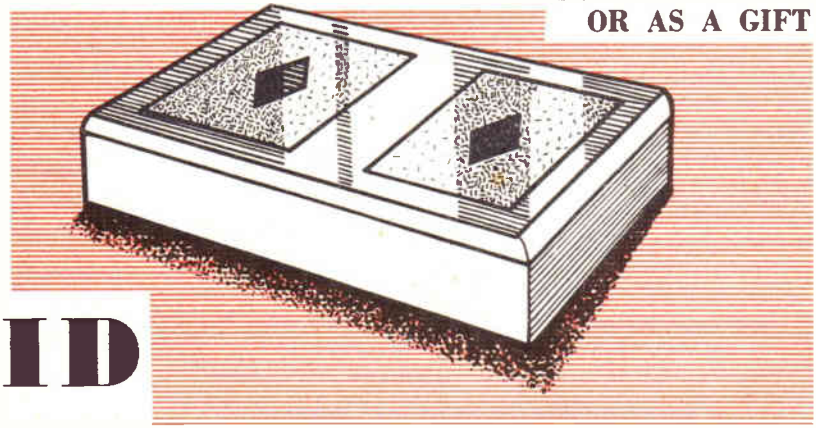
FEBRUARY 5th 1958 VOL. 125 NUMBER 3249

IN THIS ISSUE

Hobbies

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

FOR THE HOME OR AS A GIFT



INLAID CIGARETTE BOX

ODD off-cuts of ⅛in. ply and two or three pieces of coloured perspex is all the material required to make this eye-catching cigarette box — always a useful item for the party room. Inexpensive to produce, and simple to construct, it is a pleasing ornamental addition. Use perspex to match the colours of your room, and make identical boxes, and your handiwork is certain to attract the attention it deserves. Now here is how you make it.

Having smoothed the rough edges of your base member (7ins. by 3¼ins.), begin constructing the box by adding the side members (3ins. by 1in.), using a good adhesive. Care should be taken to ensure that these are built up from the base (not glued to the sides) or your other measurements will be incorrect. And it is imperative that the sides should be perfectly in centre on the base.

Fix the back and front members (7ins. by 1in.) in position, and turn your attention to the lid. This should be fixed in position with two small hinges (obtainable from any handicraft shop).

CUTTING LIST

Three pieces 7ins. by 3¼ins., base, lid, and top of lid.
Two pieces 7ins. by 1in., back and front members.
Two pieces 3ins. by 1in., sides.
Two or three pieces of ⅛in. coloured perspex

You now have left one piece of ply 7ins. by 3¼ins., which will form the top of the lid. Mark this in pencil as shown in Fig. 1, and use a fretsaw to cut out the squares (2¼ins.) (Fig: 2). Secure the lid top to the top of the box, and it only remains to inlay the coloured perspex.

The fretsaw is again the handiest tool for this job, and having cut out two pieces of the same colour (2¼ins. square), you must now reproduce the diamond pattern in a contrasting colour. Many designs can, of course, be used, but for this article a diamond shape is to be preferred.

Mark out the perspex as shown in Fig. 3, and find the centre point of the

● Continued on page 306

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

4½D

Marketing an invention

OWN YOUR OWN MONOPOLY

HAVE you ever noticed how many new products appear so frequently in the shops, or are extensively advertised at the many exhibitions held? Have you ever really thought where the ideas for them originate? Quite often it is from somebody just like yourself. Some of the inventions are the outcome of months, maybe years, of hard work following many experiments and disappointments. Yet others are evolved almost, or completely, by accident.

Having thought out the idea, how does the inventor market the product? Well, the normal procedure before each new product is produced is for the inventor to apply for a covering patent from the Patents Office. It must be appreciated from the outset that there is a vast difference between a discovery and an invention. An invention is the practical application of a discovery, and it is only the invention that will be accepted by the Patents Office. As patents will only be granted to inventions that can be manufactured, it will be seen that an idea, no matter how good, cannot be patented if it is merely an idea and is not capable of being manufactured.

Naturally, a patent will only be granted to inventions that have not previously been known. This also means that a patentee would be disqualified if he had published details of his invention in a newspaper or magazine before he had applied to the Patents Office. Although applications must be made while the invention is known only to the inventor or inventors, once applied for, publication of details in any form will not prevent the granting of a patent. That is why a product is occasionally purchased which bears the stamp 'patent applied for'.

When applying for a patent very accurate details of the invention must be submitted to the Patents Office. Compiling these details, known as specifications, is a specialised occupation, one that calls for research plus legal and engineering experience. Because of this, and to obtain the maximum protection for his invention, the inventor usually seeks the help of a Chartered Patent Agent, of which over 400 are practising in this country.

When the Patent Agent has completed the specification it is sent to the Patents Office. There the inspectors thoroughly examine the details and make a routine, but exhaustive, check to see whether or not the invention is really new.

Inventions, even the simpler ones, can make fortunes for the lucky inventor, but marketing the product can be a costly and risky business. Often the inventor seeks a backer, either a private person or a company, to help him over the initial expenses for a share in the subsequent profits. There are, however, so many inventions that it is sometimes difficult for the inventor to find a backer. Because of this, several agents advise the patentee to take out a provisional protection only, which lasts for twelve months at a cost of around £8 8s. If, at the end of that time, he cannot find somebody with the money to support his invention, then he can forget the idea and start on something new.

Assuming that a backer has been found and the patentee takes out a full patent, it will cost him between £25–£50. He has, in fact, purchased from the Patents Office a right under seal which entitles him to a monopoly in producing the manufactured result of the invention. This privilege lasts for a period of 16 years, although it can be granted for longer if at the end of that time it can be proved that due to the type of invention, the inventor has not been able to obtain a proper reward for his work. Payments to the Patents Office are made throughout the 16-year period. After the first 4 years there is an annual renewal fee. This fee rises to as much as £20 for the last 4 years. If at any time during that period the patentee fails to pay the fees, then the patent drops. Although the period of monopoly gives the patentee the sole right to work his invention throughout the United Kingdom and other countries where a patent has been taken out, he can grant licences himself to whom he likes to allow them to work the invention.

It has been calculated that only about 1 per cent of inventions are ever taken up. During 1956 around 40,000 inventors applied to the Patents Office, some of whom were private inventors and others were companies who wished to protect their ideas. Deduct from this figure inventions later proved not to be new and it can be seen that a good number still remain. Enough to make the inventor before applying for a patent ask himself, 'will it sell?'

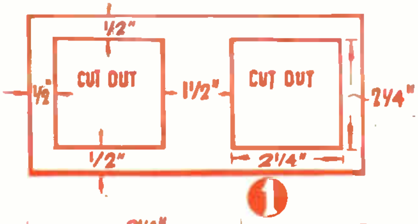
(J.A.C.)

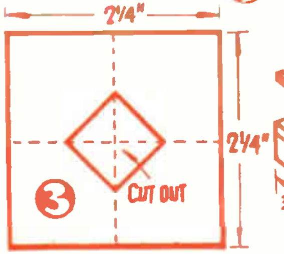
●Continued from page 305

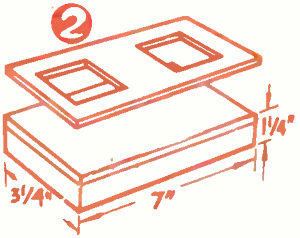
Inlaid Cigarette Box

square. From here, measure ½in. along each of the lines, and join up the points. These are your cutting lines. Cut out the diamond pattern.

Now glue the perspex pieces in the appropriate inlays of the box. Cut out identical diamond shapes from your contrasting coloured perspex, and fit these in position.







Wax polishing is ideal to give your cigarette box a nice finish. Finely glasspaper all surfaces (not the perspex), and apply a coat of clear varnish. When this is thoroughly dry and hardened, smooth with a fine grade of glasspaper and apply the wax polish. Use a soft cloth, and rub the polish into the wood, repeating the operation until all crevices are filled, and the box gleams brightly.

To add a final touch, fit beading around the lid, and to avoid scratching other surfaces, a piece of baize fitted to the underside of the base is advisable.

(S.L.)

AIDS TO FAST RUNNING

By H. A. Robinson

FOR safe operation, all curves on the fast running lines of model railways should be 'super-elevated'. Goods yard tracks, etc., do not matter so much, but even here a shade of super-elevation is at times no harm.

As many readers will know this technical-sounding term means the raising of the outer rail higher than the inner at places where the line swings away to right or left. The purpose of this adjustment is to bring the centre of gravity of the vehicles in a train inwards a little, thus automatically counteracting the centrifugal force which on a curve is always trying to push a fast moving train outwards and roll it over.

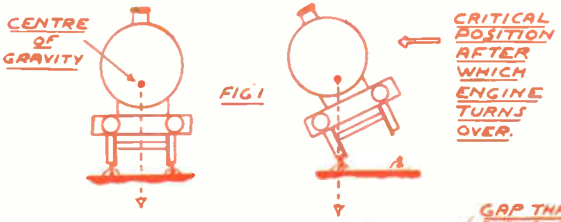


FIG 1

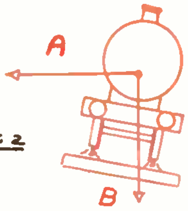


FIG 2

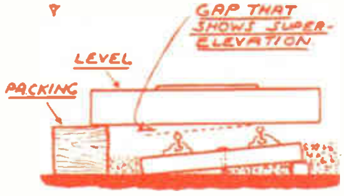


FIG 3

This dangerous force is the same as the one created when a stone is swung round on the end of a string, and which makes the stone fly away when the string is released.

Any vehicle (or loosely standing object) tumbles over when a vertical line from its centre of gravity comes outside the base, see Fig. 1, this being the reason why the centre of gravity of locomotives, coaches and other stock is kept as low as possible.

As a train rounds a curve it has two forces working on it, the centrifugal as (A) Fig. 2, and the weight (B) acting straight down from the centre of gravity. The super-elevation, however, as can be clearly seen, brings the vertical from the centre of gravity inward and away from the outer rail, and a lot more centrifugal force would now be needed to get it to the outer rail and over the danger point, so the train gets round safely. With the rails flat, the weight line would reach the danger point sooner.

The makers of tinplate track have for long noticed this need and if a length of tinplate curve is examined, it will be found that the sleepers are all wedge-shaped, thus automatically giving the desired tilt.

But if you are working with scale-model track built up by yourself, then some way is required of finding out how much raising of the outer rail is necessary. Guesswork is not too good.

The degree of lift, fortunately, can be calculated by a simple formula. Thus if 'S' equals the scale in centimetres of the models and 'R' the radius of the curve in feet, the super-elevation is given *in inches* by $1/R \times S/28$.

Supposing a gauge O curve is of 2ft. radius (the smallest that should ever be used for fairly fast running in this gauge), then the formula for gauge O, which is 7 mm. scale, becomes $\frac{1}{2} \times 7/28$, which, reduced, equals $\frac{1}{8}$, that is $\frac{1}{8}$in.

The formula is sound for fairly fast running, but super-elevation varies according to the speed of trains the curve has to take. The variation is based on the square of speed differences. Thus, twice the speed, *four* times the elevation, and so on. One must always calculate for the fastest trains on the line.

It is handy that in the different gauges the super-elevation works out roughly as a quarter of the 'reciprocal' of the radius of the curve, which put in a more arithmetical form is:—

$$\tfrac{1}{4} \times 1/\text{radius in ft.}$$

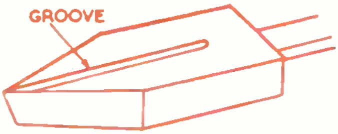
Try this out on the gauge O example given above, where the radius of the curve is 2ft. Here then we would have $\frac{1}{4} \times \frac{1}{2}$, which again results in $\frac{1}{8}$in.

It is not easy to get precise raising of the outer rail unless a spirit level is used, so get one for going over your track. Place this on the outer rails and pack up till the bubble is accurately centred (Fig. 3). The depression of the inner rail can then be read, which, of course, is the same as the super-elevation of the outer rail.

One final word about this interesting aspect of model track laying, and a very necessary one. Do not jump the rails quickly from the flat to a tilt, but let the outer rail on the leading in straight, and while still on the straight, come slowly up, so that when the curve is entered, the higher level is there to be carried on round the winding section.

Also from the practical angle it is best to place slivers of wood under the outer ends of the sleepers to bring them to the desired height, and then make all tight with a screw through an occasional sleeper, rather than depend on ballast-packing to give the slope.

IMPROVED SOLDERING IRON



Everyone who does a fair amount of soldering knows the difficulty of getting into awkward places, and here is a method which will meet the need in almost every case. Using a round file or hacksaw and round file combined, make a groove in the bit end of the soldering iron, as illustrated. The iron is tinned in the usual manner, but, when hot, the solder is fed into the top of the groove. The solder flows readily down the groove to the tip and thence on to the work.

Where solder has to be flowed around a partly inaccessible joint, this tool is without rival. (G.H.H.)

CHEMISTRY IN THE HOME

EXPERIMENTS WITH PHTHALIC ANHYDRIDE

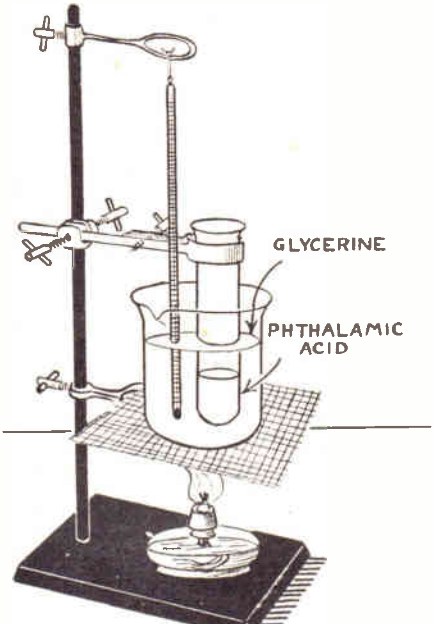
REAL tar yields us the raw materials for the manufacture of many important chemicals. One of these chemicals is phthalic anhydride. Naphthalene, the essential constituent of the old fashioned moth balls, exists in coal tar and it is from this that phthalic anhydride is prepared.

Briefly, the method is to heat naphthalene with strong sulphuric acid and mercuric sulphate, to extract the phthalic acid formed and to convert this, by heating it, into phthalic anhydride. It is not recommended, however, to prepare the phthalic anhydride for the following experiments, since the process is lengthy and the substance may be bought very cheaply at a laboratory furnisher's — much more cheaply than one could make it.

It usually comes into the laboratory in the form of white flakes and has an agreeable smell of almonds. While it is not met with in everyday life, it is the parent of something which is, namely, the green liquid in spirit levels. This is a solution of the sodium salt of fluorescein. Its formation is a characteristic and certainly the most striking test for phthalic anhydride. Melt together in a dry test tube a little powdered phthalic anhydride with about twice its bulk of resorcinol, using a small flame and taking care not to char the melt. It darkens to deep brown. Let the tube cool, add some sodium hydroxide solution and warm to dissolve the brown substance. Pour some of this into a big jar of water and you will see the most gorgeous play of green and yellow colours as the sodium fluorescein solution disperses in the water. Stir it up to complete the dispersal and you will now note that by reflected light the solution looks green, but if you look through it the colour is yellow. The intensity of this green fluorescence is such that a small quantity will colour whole rivers. Because of this property, sodium fluorescein has been used for tracing the course and finding the outlet of streams which disappear underground.

To the remainder of the solution in the test tube add dilute sulphuric acid. A brownish precipitate of impure fluorescein appears, showing that it is insoluble in water but soluble in alkalis such as sodium hydroxide.

Another substance derived from phthalic anhydride which is familiar in the laboratory is phenolphthalein, so much used as an indicator of acidity and alkalinity. It has also been used in medicine as a purgative. To demonstrate its formation put into a dry test tube 0·2 gram each of phthalic anhydride and phenol and add one drop of strong sulphuric acid. Both phenol and the acid are corrosive to the skin, so any coming in contact with your hands should be flushed off with water at once.



Finding the effect of heat on phthalamic acid

Heat the test tube gently for a few minutes, let it cool and add 20 c.c. of cold water. Warm the tube to disperse the fused mass and then add sodium hydroxide solution. An intense red colouration appears, due to the phenolphthalein which has been formed dissolving in the alkali. Pour off a little of the red solution into another test tube and add a dilute acid. The colour disappears. These reactions show how useful the substance is for showing the presence of an acid or an alkali.

As the name anhydride indicates, phthalic anhydride is closely related to an acid. An anhydride is an acid minus some or all of its water. By making this anhydride take up water we form phthalic acid. It is not sufficient just to place the substance in contact with water, though by long boiling it will form the acid.

A quick way is to dissolve the anhydride in sodium hydroxide solution, whereby the sodium salt of phthalic acid, is formed, and then to liberate the acid by means of a stronger acid. To a solution of 4 grams of sodium hydroxide in 100 c.c. of water add 7·4 grams of phthalic anhydride. Stir well to promote solution and finally warm the liquid to dissolve the last portions of solid. Allow to cool and then stir into the colourless solution 10 c.c. of strong hydrochloric acid. A white crystalline precipitate of phthalic acid appears. Let the liquid stand an hour or two and then filter off the acid, wash it on the filter with a little cold water and purify it by dissolving it in 50 c.c. of boiling water.

As the solution cools crystals of the pure phthalic acid separate. Allow the liquid to stand overnight for crystallisation to be complete, filter off the crystals and let them dry on a clean porous brick. Try heating a little in a dry test tube. A white sublimate of phthalic anhydride forms, showing how easily phthalic acid loses water and is re-converted into its anhydride.

A peculiar thing happens when phthalic anhydride is treated with a different alkali. One would imagine that by dissolving the anhydride in the alkali ammonium hydroxide and then evaporating one would obtain ammonium phthalate. What actually does happen is that the ammonium salt of another acid is formed, namely, ammonium phthalamate. You can try this out and at the same time extend your laboratory stock by preparing some new substances from it.

Mix 18 c.c. of strong ammonium hydroxide with 90 c.c. of water and add 15 grams of phthalic anhydride. Stir well until most of the solid has dissolved and then warm the liquid to dissolve the rest. Pour the solution into an evaporating basin and evaporate to dryness on the water-bath. White ammonium phthalamate results.

Phthalamic acid may be prepared from this. Put 13 grams of ammonium phthalamate into a mortar and grind it

● Continued on page 309

Lots of fun with this

BOOMERANG THROWER

THE Aborigines of Australia do not need anything to help them to throw their sharp-edged, wooden boomerangs. After years of practice starting from boyhood, they throw these amazing weapons skilfully by hand. Their boomerangs are, of course, very much larger than the little models described here as for use with a thrower.

This model thrower is meant for flicking cardboard or thin-wood boomerangs. You can very soon learn to flick them long distances into the air and make them return to you, to land on the ground or to be caught in your hand.

Materials needed for the boomerangs are thin card or very thin wood. For the thrower you will need — a piece of wood 5ins. by 3½ins. by ½in., four 1in. nails, four large-headed ½in. nails, and a piece of strong, springy wire, 4½ins. long.

To make the thrower: Cut a strip 1½ inches wide off the 5-inch length of wood. Nail this on to the top edge of the larger piece of wood (Fig. 2), and glass-paper the edges and surfaces. Bend the springy wire into the shape shown in Fig. 3.

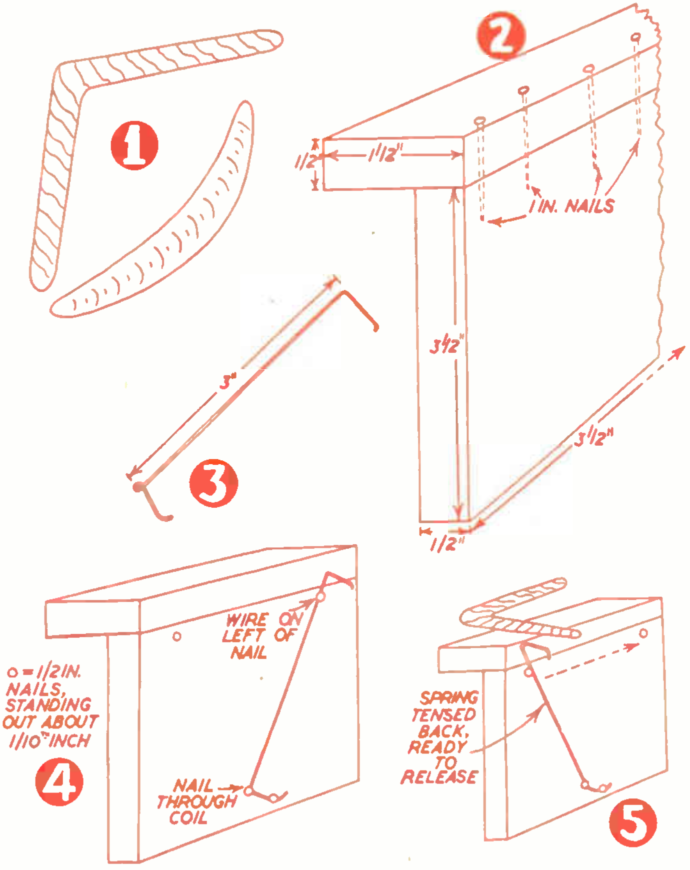
Using a large-headed ½in. nail, fasten the wire through the coiled part on to the wood, in the position shown in Fig. 4, and fasten the other three large-headed nails in position, so that they stand out just far enough for the wire to go between the wood and the nail-head.

Boomerangs should be made twice the size of shapes shown in Fig. 1 from thin wood or card.

To use the thrower hold it in the left hand pointing the front edge slightly upwards, and pull back the spring with the right hand. Hold it there with the left hand. Place a model boomerang flat on the top of the smaller piece of wood, with the edge of the boomerang slightly overhanging the edge (Fig. 5). Release the spring smartly and the boomerang will soar into the air and return towards you.

You can have a lot of fun, experimenting with different-shaped boomerangs, different materials for them, and different positioning on the thrower.

The thrower is best used in the open-air because with practice the boomerangs can be sent long distances. (E.C.C.)



● Continued from page 308

Chemistry in the Home

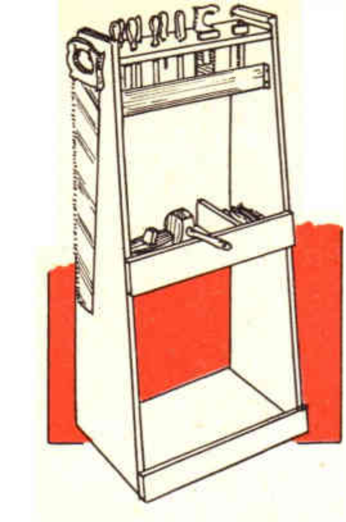
with 60 c.c. of cold water until no more appears to dissolve. Filter the solution into a beaker and stir in 7·5 c.c. of strong hydrochloric acid. In a few seconds striae appear and it is a striking sight to see small refractive crystals separate suddenly from these. Leave the liquid overnight, when the striae will have disappeared. The white crystals in the liquid consist of phthalamic acid. Filter these off, press them as dry as possible on a clean porous brick and then pour over them about a quarter test tube of cold water. Let the crystals dry on the tile.

Phthalmic acid undergoes a curious change on heating. Rig up the apparatus shown in the diagram. Put about 6 grams of phthalamic acid in the boiling tube. Now heat up the glycerine bath. When the thermometer registers a little over 140 degrees Centigrade the acid melts. From this point on stir the melted acid with a glass rod, or the end product will be difficult to remove from the tube.

As the temperature rises you will be surprised to see this, the acid begins to set and finally solidifies, whereas one would expect it to follow the usual process by remaining liquid and, if the temperature crept high enough, starting to boil. You will have noted a hissing sound during the experiment. This was due to disengagement of steam. What has happened is that the acid has decomposed into steam — which caused the hissing — and a new substance. This, as you will observe, is a white solid.

Empty it out of the tube, boil it up with about 50 c.c. of water, let it cool, filter it off and wash it with a little cold water on the filter. Then dry it in the oven. This white substance is phthalimide.

A TOOLRACK FOR YOUR WORKSHOP



THIS is a useful rack, with accommodation for most of the tools required by a craftsman. It is of simple construction, and easily made in an evening or two. Small tools are fitted in holes and slots in the top, at a convenient height for the worker. Larger tools, and boring bits, can be kept in the tray shelf beneath, and at floor level a compartment is provided for spare pieces of wood or other materials, or, in fact, for anything not required at the moment. Extra large or awkwardly shaped tools, such as handsaw, brace, etc., can be hung on hooks driven in the sides of the rack.

A front view of the rack is given at Fig. 1, and a vertical side section at Fig. 2. For the sides a piece of $\frac{3}{8}$in. plywood will serve, 18ins. wide and 3ft. 2ins. long. Both sides can be cut from this without waste. The shelves can also be cut from this material, or $\frac{1}{2}$in. planed deal, as preferred.

At positions where the shelves are to be fixed, screw $\frac{3}{4}$in. by 1in. strips of wood. Cut the three shelves to length given, or longer if a wider rack would be desired, and screw to the strips. An easier job will result here, if the screw holes, which, by the way, should be countersunk, are bored in the shelves beforehand. Across the front of the rack nail 2ins. wide strips of thin wood to the middle and bottom shelves. Strips of $\frac{3}{8}$in. thick matchboarding would suit. To the top of the rack sides, $\frac{1}{2}$in. square strips of wood are nailed on the inside as at (A) in Fig. 2, to provide a grip when the rack has to be lifted up and shifted. The corner edges of these should be rounded off a little for ease in handling.

Provide a back of plywood or hardboard for the rack, nailing it to the

CUTTING LIST

Sides, 2.	3ft. 2ins. by 12ins. by $\frac{3}{8}$in. plywood.
Shelves, 1.	1ft. 6ins. by $6\frac{1}{4}$ins. by $\frac{1}{2}$in. board.
Shelves, 1.	1ft. 6ins. by 10ins. by $\frac{1}{2}$in. board.
Shelves, 1.	1ft. 6ins. by 12ins. by $\frac{1}{2}$in. board.
Back.	3ft. by 19ins. by $\frac{1}{4}$in. ply or hardboard.

Remainder from scrap wood.

sides, as well as the shelf edges. At convenient positions on the sides, drive in large-sized brass hooks, from which a handsaw and brace can be hung. The necessary slots and holes for chisels,

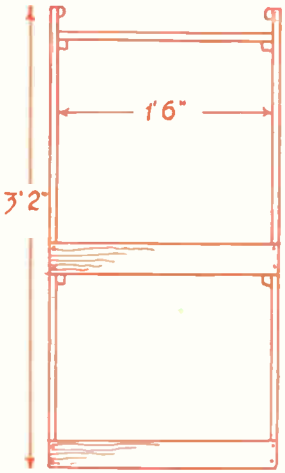


Fig. 1

gouges, etc., will need to be made in the top shelf, but it is obvious these should be done before the shelf is screwed across. Room will most likely be available on this shelf for try square, gauge and tenon saw. The longer of such tools are best accommodated at the rear, and tools such as chisels, gimlet and bradawl at the front.

It will be wise to provide a protector to cover the sharp edges of chisels and gouges, to guard against the danger of catching the hands against them when removing tools from the shelf beneath.

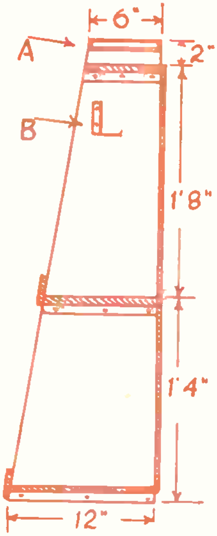


Fig. 2

This can be a length of sheet metal, about 4ins. wide, bent L-shaped, and screwed to the inside of the rack, just below the edges of chisels, etc. It is shown at (B) Fig. 2, the best position being found by experiment.

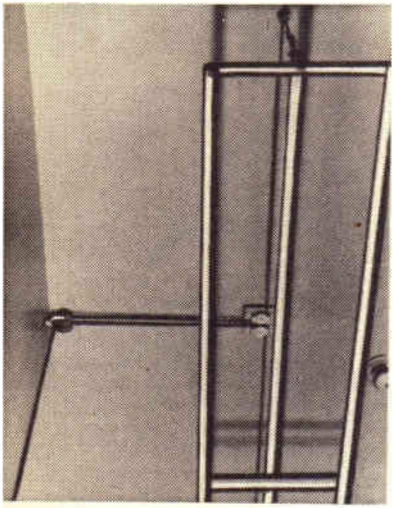
(W.J.E.)

Winning Display

Five years ago Mr. M. McKerr of Lurgan, Co Antrim, N.I. took up fretwork as a hobby. He has become proficient rapidly as is seen by the excellent display in our picture. Incidentally, Mr McKerr started his modelling with the Ark Royal and Lord's Prayer Tablet—not the easiest of designs, to say the least—but success has come in the shape of a cup awarded for his exhibits at a local show.

For drying and airing

A KITCHEN CLOTHES RACK



A photograph of the rack from below.

THE drying and airing rack described can be easily made, even by those with very limited facilities for home carpentry. It has the great advantage that it can be fitted in a small kitchen and pulled up to the ceiling, thus saving valuable space.

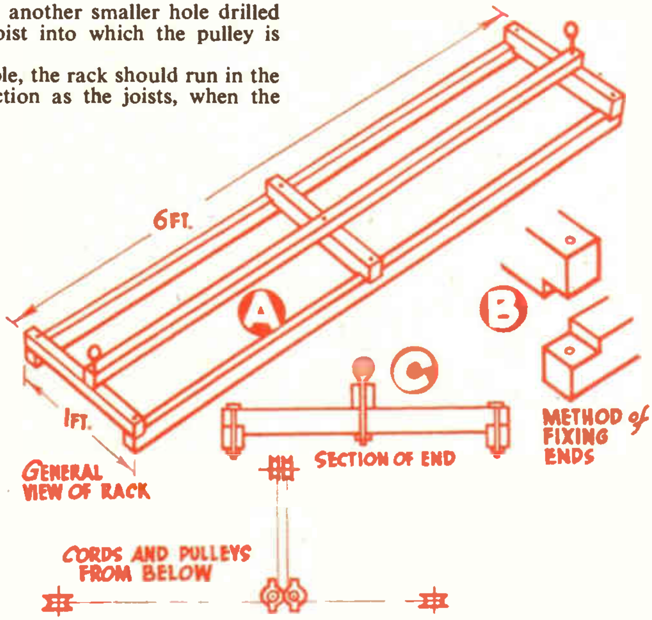
The dimensions given are only suggestions, since the appliance may be made a suitable size for the available ceiling space.

Three lengths of 1in. by ¾in. planed wood are required for the long strips and three cross pieces of the same material. The ends are shaped as shown in the diagram (B), using a small saw, and ¼in. holes are drilled through them and in the centres of the cross pieces. These are then bolted together as shown at (B) and (C), with the exception of the ends of the centre length, which are fastened by means of threaded ring-bolts and nuts. For neatness the square edges may be rounded with a file or rasp, and the whole smoothed down with glass-paper. An undercoat and top coat of bath enamel or some other highly water-resistant paint should be applied.

To fasten the rack to the ceiling, two single screw pulleys, one double screw pulley and two flush mounting pulleys are required. These may be obtained at any ironmongers. The main weight is taken by the single screw pulleys which should be at the same distance apart as the distance between the ring bolts on the rack. The screwed portion of these should be at least 1½ins. long and great care must be taken to see that they are screwed into a joist above the ceiling. This can usually be located by tapping the ceiling, a 'solid' sound indicating the position of a joist. The location may be verified by piercing the plaster carefully with a thin awl or a darning needle mounted in a wooden handle to ascertain that solid wood is there. Once the joist has been located, a hole is drilled in the plaster to take the screw of the pulley and another smaller hole drilled into the joist into which the pulley is screwed.

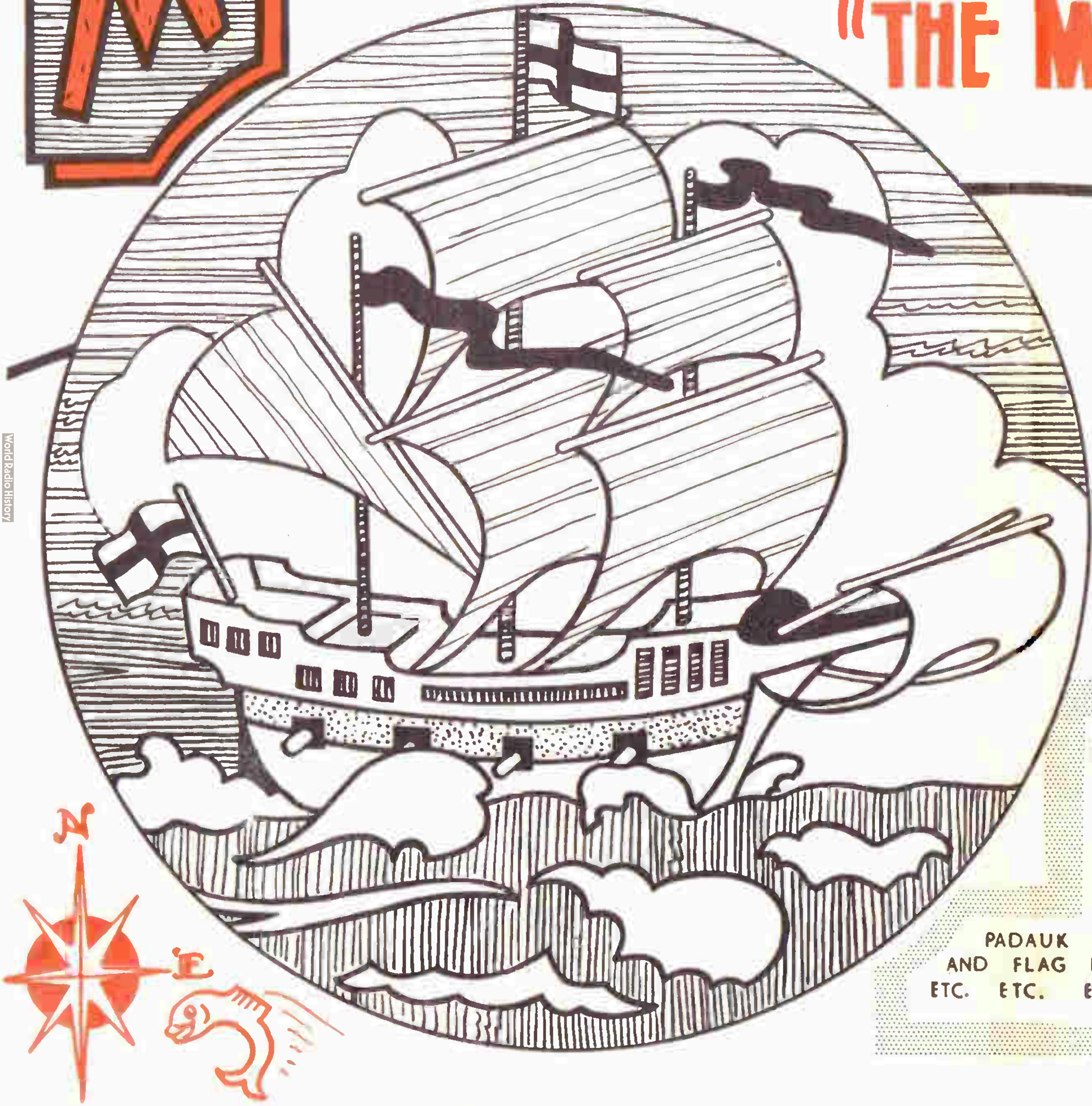
If possible, the rack should run in the same direction as the joists, when the fitting is easier, since the second hole can be anywhere along a line parallel to the wall and passing through the first hole. Otherwise a batten would have to be screwed across the ceiling to the joists in order to fasten the pulleys at the correct distance.

The two flush mounting pulleys are then fastened to a small block of wood and screwed to the joist halfway between the end pulleys. These take the cords across the ceiling to the wall, where they are taken down over the double pulley screwed into the top of the wall (with a Rawlplug). This is made clear in the photograph. To fasten the cords, the rack is supported at its required 'lowered' height under the ceiling pulleys. One end of a length of cord is fastened to one of the ring bolts of the rack, pulled upwards over the corresponding ceiling pulley, across and down the wall over the double pulley. The other cord is fitted in a similar manner, and the two knotted together at their lower ends, where they may be fastened to a wall cleat, holding the rack when lowered and providing a means of fastening it when pulled up to the ceiling. The length of cord required will, of course, vary according to individual dimensions. A thin supple sash cord is the most suitable. (P.R.C.)



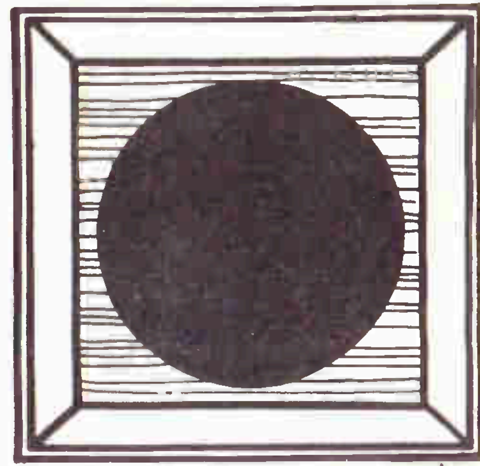
MARQUETRY

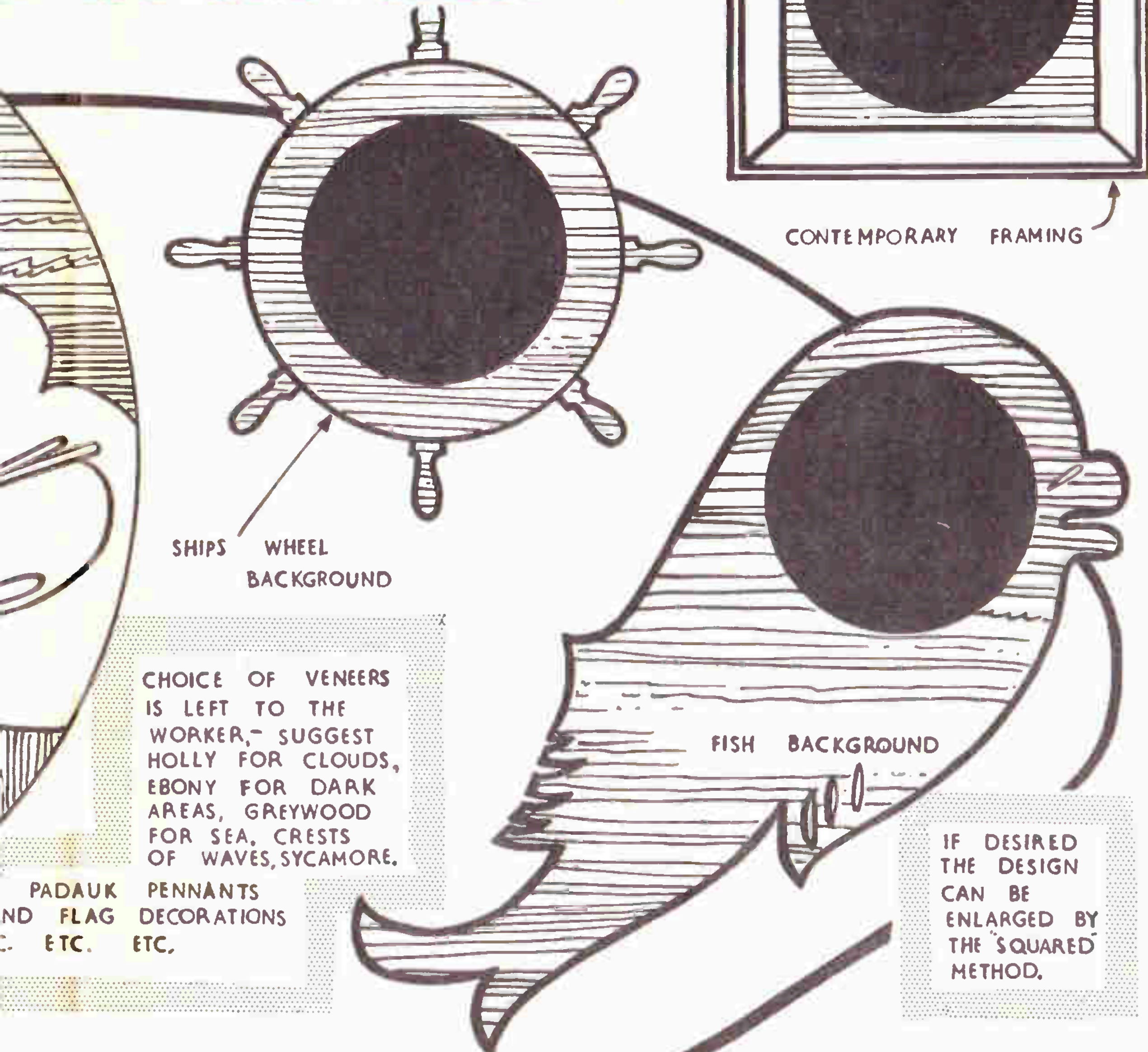
"THE M



PADAUK
AND FLAG
ETC. ETC.

Y PLAQUE
E "MAYFLOWER"





AN EASEL FOR THE ARTIST

THE artist who does a lot of painting is bound to need an easel to hold his boards or canvas. It may be just for occasional use or perhaps he prefers to use one for all his work.

A professional artist's easel can be a very expensive item and not at all easy to make but this need not deter the enthusiast from possessing one. The very efficient easel described here can be literally strung together in a matter of minutes. It is strong, very portable and takes up a minimum of space.

All that we need are three strong supports — either dowel rods or bamboo canes are quite suitable — and a piece of cord to hold them together. The length of the rods will depend on the way the easel is used. If you stand to do your painting, and this is the usual way especially with oils, then 5ft. would not be too much, but for sitting down to work 3ft. 6ins. to 4ft. will be about right.

The thickness also will be governed by the length, and the larger easel will need a stouter rod than the smaller edition. For a light short easel ¾in. should be sufficient but you will need at least 1in. diameter for the larger version if it is going to be rigid enough to enable you to work with comfort.

The bottom end of each rod must be tapered off to a point so that it can be pushed into the ground when working outdoors. This will not be possible with bamboo canes, and these will have to be plugged with a length of solid wood which can then be pointed in the same way.

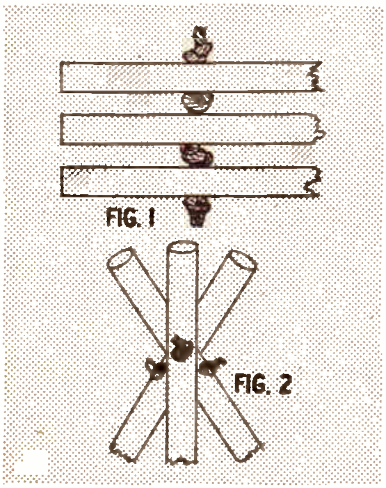


FIG. 1

FIG. 2

About 3ins. from the top of each piece drill a hole ⅛in. diameter, slightly countersink both sides and glasspaper so that there are no rough edges.

Now join the three rods together with a length of strong cord making a knot between each as shown in Fig. 1. This should be done fairly loosely to allow them to be placed so as to form a tripod (Fig. 2.) The exact tension is best found by experiment and must be adjusted so that the three rods are rigid when in a working position. If you can get a piece of stout catgut this will be ideal for the job and should last quite a long time without fraying out.

How to keep the canvas or board on the easel is the next problem and there are two ways of doing it. If it is a canvas on a stretcher, two screw-eyes can be attached and a cord slung over the top of the easel. Where there are no means of fixing screws to the board then pegs must be used.

Drill a series of small holes — say about ⅛in. diameter along the centre portion of the face of the two front rods at a distance of 4ins. to 6ins. apart. Suitable sized wire nails with a large head will make excellent pegs. For a more secure peg 2 B.A. brass screwed rod could be used fixed with a nut on either side of the tripod leg, and another on the end to keep the board from slipping off.

If the easel is used indoors on a smooth floor the legs will need some form of anchorage. Drill a small hole in each leg about two-thirds of the way down and thread a piece of cord through from leg to leg tying it when you have found the best position. Bamboo canes will not require any preservative but if you are using dowel rods or thin broom handles a coat of paint or varnish will protect and improve the appearance. (A.F.T.)

Boring a hole in Glass

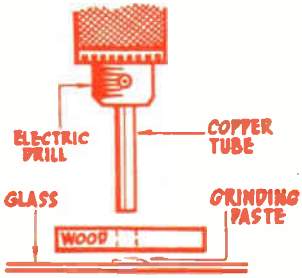
IN the absence of a glass drill, the following method will be found useful for most purposes.

Instead of fitting a drill to the chuck, obtain a short length of stout gauge copper tubing, about 1½ins., having the required diameter. Obtain also a little coarse carborundum grinding paste as used for grinding the valve seatings of cars. Fit the copper tube to the chuck and fill with the paste, and you have a very efficient glass drill, especially if using an electric drill.

Some difficulty might be experienced in steadying the drill at the required spot when starting; to overcome this difficulty obtain a small square of ¼in. thick hard wood, bore a hole of same diameter as the drill in the centre, then fix this wood with strong adhesive to the glass, so that the hole is exactly over the spot where it is required to bore. Now drill through the wood, which will hold the drill in place until boring starts.

The copper tube acts as a good conductor of the heat generated, thus keeping the glass and the drill cool, so that there is far less likelihood of cracking the glass.

It is not necessary to press heavily,



but once the boring into the glass has started, it should be fed at intervals with the paste. It takes time, but with patience a good result can be effected. (J.T-S.)

MAINLY *for* MODELLERS

NOTES ON RESEARCH

By '*Whipstaff*'

As I have stated more than once in these pages, one of the most rewarding of activities for the ship modeller is that of research, or the searching out of information about some particular ship or type of vessel that has aroused personal interest, sufficient to enable us to build a model. This fascinating part of our hobby is not, as one might suppose, confined to the more advanced modeller. Anyone can enjoy this section of our work, and, in fact, much has been added to the sum of our knowledge by modellers who have had an urge to build a particular model, in many cases because of family connections with a particular type, or a particular ship.

The main difficulty is knowing how to set about the job of collecting the necessary information, and then the drawing up of the plans for the model. It makes no difference whether we plan a miniature model or a scale model of some size; reliable data is necessary if our model is to repay us in full for the work spent upon it.

Reliable sources

There are many sources of information available, and the beginner in this field will find that his local reference library and such reliable authorities as the Science Museum, South Kensington, S.W.7, the National Maritime Museum, Greenwich, the British Museum and local museums are only too pleased to be most helpful.

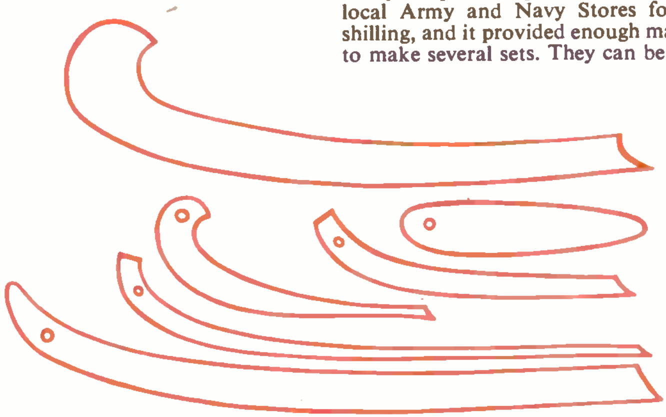
For the advanced modeller I would also point out that I have found museums and societies in other countries very helpful.

At the reference library and the museums rare books can be referred to. Another source of very valuable information is a family record. Some of us are fortunate to be acquainted with families with long connections with the sea. Others, if interested in, say, a local type of craft, can search out, perhaps, while on holiday in that particular locality, some local person with the necessary knowledge, a local firm who may have been established some generations in the business of boat building for the local fishing industry, or a family who numbered among their forbears some of the men who captained and served aboard such craft.

Other sources of data are ships' chandlers, although these may be difficult to find, and shipbuilding firms. Local small yards and the larger concerns are always willing to help the serious modeller. The Admiralty can be very helpful for ships both old time and present. They have ships lines and draughts of naval ships from Stuart to the present time, although they cannot, of course, supply data on current naval vessels, for security reasons.

Local records

Local town records, old newspaper files (such as the Army and Navy and the Illustrated London News), coins, seals, maps and old charts, customs records, etc., can all supply useful information. There are many sources open to the earnest enquirer. The first



thing is to know the ship or period for which you desire data, and then to sort out the sources that are most likely to prove fruitful in that particular direction. Although I have mentioned many sources of information, I am not suggesting that the modeller should endeavour to contact all these, as I give them simply as a guide to the model maker to show what help is open to him.

Any reader desiring information on a particular model or type, can obtain through the editor whatever information I have in my records, and suggestions as to the best authorities to which he can apply for further details if they are available.

French curves

I will have further to say on this question of research in future articles, and will give some instances of ways in which I have found unexpected details. In the meantime, here is a suggestion that will help you when you come to the end of collecting information, and want to draw your plans.

When we come to the actual drawing of the plans to which we are to work, we find the need for something additional to the usual drawing equipment, such as French curves, but these are expensive, and although I have a set, I prefer to use a set I have made myself. The design is, again, French, but these were designed for ship model makers. Mine are made from $\frac{1}{16}$in. plastic, actually an old U.S.A. Army map case, purchased from the local Army and Navy Stores for one shilling, and it provided enough material to make several sets. They can be made from heavy celluloid, thin plastic, or even thin plywood, but they must be accurate, and the curves smooth. It is also helpful to bevel the edges all around on one side, enabling you to ink in your finished plans in Indian ink, and so make them permanent.

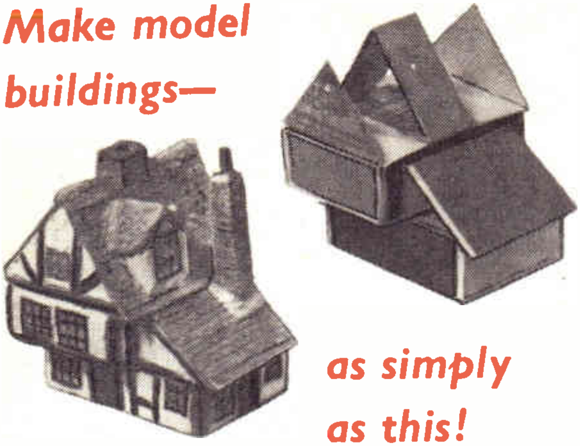
The shapes are shown quarter size, and those readers who are interested in making them, will find them useful for future articles that are scheduled for these pages. They are very useful also when redrawing plans to a larger or smaller scale than those that are available of any particular ship.

SOLUTION TO CROSSWORD NO. 12

Across: 1. Muses. 4. Closet. 8. Aneled. 10. Smelt. 12. Red hot. 14. Infancy. 17. When. 19. Onagers. 20. Pandora. 22. Erie. 23. Umpires. 27. Tremor. 29. Pursy. 30. Samite. 31. Recede. 32. Event.

Down: 1. Miami. 2. Shelf. 3. Stern. 5. Lash. 6. Seethe. 7. Titans. 9. Decorum. 11. Mowgli. 13. Dynamos. 15. Near. 16. Adders. 18. Erse. 20. Pepper. 21. Nitric. 24. Prate. 25. Rhine. 26. Scent. 28. Eyed.

Make model buildings—



as simply as this!

A *new method*—described in a *new book* on Pyruma Modelling. This shows how to turn empty match boxes into model buildings, by Pyruma 'Plasticraft'. It is one of the *many* methods of modelling in plastic Pyruma, shown in black and white and full colour pages, which enable you to build and finish in natural colours:—

MODEL FARMS, RAILWAY STATIONS, SIGNAL CABINS, AIRPORT BUILDINGS. DOCKS, SHIPS, FIGURES, ANIMALS, ASHTRAYS, BOOKENDS, DOLL'S FURNITURE, PLAQUES, RELIEF MAPS, ETC.

SANKEY'S
PYRUMA
PLASTIC CEMENT

Is a ready-to-use material, cheap to buy locally, and easy to work by following the Instruction Book offered below. Pyruma dries or can be baked to stone-hard permanence, then painted in natural colours. Sold by local Ironmongers and Hardware-men, Hobbies shops and Art material Dealers, in airtight tins from 1/6 upwards.

Send Coupon and 6d. P.O. (not stamps) for this NEW Book of Instructions to:—

J.H. SANKEY & SON, LTD
Established over a Century
Dept. H. ILFORD, ESSEX.

Enclosed 6d. P.O. (not stamps) for PYRUMA MODELLING INSTRUCTION BOOK addressed to:—

NAME (Block letters)..

ADDRESS..

....

The model illustrated above obtained two first prizes in our recent Exhibition at Huddersfield due mainly to the finish which is Valspar Lacquer.

it's easy to see the reason why

They put the finishing touches to your hours of patience providing a brilliant smooth finish on any surface.

Valspar Lacquer requires no knotting, priming or undercoating and one coat gives an excellent result on a smooth non-absorbent surface.

*** PROOF AGAINST BOILING WATER, PETROL, OIL, ALCOHOL, ETC. * DRIES IN 2–4 HOURS**

GOODLASS, WALL & CO. LTD.
179/185 (AC2) Gt. Portland St., London W.I
Please send me a free copy of the Valspar Handbook giving full details of how to use Valspar paints

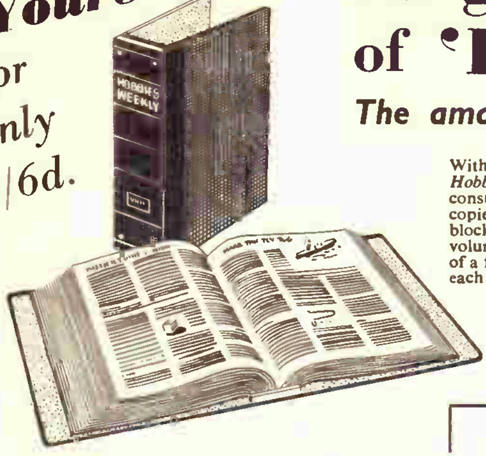
NAME..
BLOCK CAPITALS
ADDRESS..

....

Safeguard your copies of 'HOBBIES WEEKLY'

The amazing 'EASIBINDER' (Pat.) makes it simple

Yours for only 8/6d.



With the new *EASIBINDER*, specially prepared for Hobbies, you can bind each copy of *Hobbies Weekly* as you get it, turning your favourite magazine into a permanent, easily-consulted library of immense value, and avoiding the delay and despair occasioned when copies are accidentally mislaid or destroyed. Carefully finished in black leather-cloth and gold-blocked on the spine, each binder is strong, serviceable and neat. It will hold two complete volumes (52 copies) and costs only 8/6. Each copy of the magazine is quickly inserted by means of a flexible steel wire, and can easily be removed if necessary. Easy-to-follow instructions with each *EASIBINDER*. Get one today and take care of your copies of *Hobbies Weekly*.

NOTE *From the issue April 10th, 1957, there is a slight difference in the size of the magazine, and two sizes of Easibinders are available. Type A is for binding issues published before April 10th and Type B is for those printed subsequently. To avoid confusion, when ordering, please indicate clearly the type of Easibinder required. Indices for each completed volume 1/- each post free.*

☆ One 'EASIBINDER' holds two volumes (52 copies)

☆ Easy to use

Post today

To: HOBBIES LTD., Dept. 99, Dereham, Norfolk.

PLEASE SUPPLY ...... EASIBINDERS (Type ......) at 8/6 each.

NAME...

ADDRESS...

P.O. for ....

.... enclosed ....

GOVERNMENT SURPLUS BARGAINS. Inter-room Telephones, comprising 2 self-energised microphone/receivers and approx. 6yds. flex (may be extended if desired). No Batteries needed. Nothing to wear out. Complete 9/6, post 6d. Motors, Transformers, Switches, etc. 3d. stamps for illustrated list. **Milligan's, 24 Harford Street, Liverpool, 3.** Money Back Guarantee.

15/6 CRYSTAL RADIO kit. Easy-to-build with only a screwdriver and pliers. Post free — send 15/6 P.O. ALSO — 1 and 2 valve kits, headphones, etc. — send stamped addressed envelope for complete list to — Blanchard's Radio, Dept. HC7, 13 Gainford Gardens, Manchester, 10.

LEARN it as you do it — we provide practical equipment combined with instruction in Radio, Television, Electricity, Mechanics, Chemistry, Photography, etc. — Write for full details to E.M.I. Institutes, Dept. HW47, London, W.4.

FREE stamp album and 20 stamps. Request approvals, enclosing 4d. Additional gifts given. — Beeze, 8 Langland Villas, Mumbles, Swansea.

STOP SMOKING in 3 days or money back. Safe, pleasant, permanent. The only scientific way. **No Will Power necessary.** 'Conquered the habit in 2½ days'.—F.C. 'Within 2 days I was free from the tobacco habit'.—W.G. 'Was a smoker for 2 years and broke the habit in 2 days'.—F.N. 'I used to smoke 20 a day . . . now I have no desire to smoke'.—J.M. Recommended by 'Health and Efficiency Magazine'. Complete course 7/6 (or $1.00 bill). Details 2d. stamp. Sent under plain cover. **NATURE REMEDIES, 28 (H/176) Dean Road, London, N.W.2.** Established 1928

★ **GREAT CAMPING OFFER** ★

RIDGE TENT SENT FOR 4/-

BRAND NEW de luxe 'Safety' Tent. All colours. Complete. Ideal cyclists, campers. Length 7' 3" sleeping base × 4' 6" wide × 3' 6" high × 12" walls, all approx. Weight 3½ lb. Cash 55/-, or 4/- deposit and 6/- monthly. WITH FLYSHEET 83/6, or 9/3 deposit and 9/9 monthly. Both carriage 2/6. LISTS OTHER EQUIPMENT. TENTS, CLOTHING, WATCHES, ETC., TERMS.

PURE WOOL SWEDISH RED CROSS SLEEPING BAGS

ONLY 18/11 POST ETC. 3/1

Brand new Government stock. Completely zipped full length on one side and especially zipped across the chest and around the head, which is held rigid with flexible stays that fold flat when packed. They must have cost £4 to make. These famous sleeping bags, comfortable to an amazing degree, are without doubt the finest model ever made and we offer them at a cost of less than the wool content! Send for one and see for yourself, on money back guarantee. Only 18/11, post, etc., 3/1 Folds up neatly for easy transportation. Full length and width, accommodates any size person. Send quickly or callers welcome. LISTS. TENTS, ETC. TERMS.

Headquarter & General Supplies Ltd. (HOBW/97) 196-200 Coldharbour Lane Loughboro Junc., London, S.E.5 Open Sat.

EVERY CAR THAT PASSES—YOU WILL FIND THE INDEX MARK ALPHABETICALLY ARRANGED IN **WHERE'S THAT CAR FROM?** Price 9d. *from all Booksellers or from the Publishers* (2d. postage) RALEIGH PRESS, EXMOUTH

GENUINE Swiss Musical Movements. The best and largest selection of tunes in the country, lowest prices 16/3 each. Genuine Thorens Movements, 22/9 each. All guaranteed. P. & P. 9d. extra on all orders. — Richardson & Forder, HW, 5 Chapel Place, White Hart Lane, London, N.17.

100 DIFFERENT stamps free! Request ½d. upwards discount approvals. — Bush, 53 Newlyn Way, Parkstone, Dorset.

'PAINTSPRAYING' HANDBOOK. Covers Car, Industrial & Flock Spraying. 3/6, post 4d. Catalogue of our Cellulose and Paints and all Allied Sundries 3d. — Leonard Brooks Ltd., 81 Oak Road, Harold Wood, Essex.

50 ITALIAN stamps free, to approval applicants enclosing postage. — Miller, 95 Bollington Road, Heaton Chapel, Stockport.

75 DIFFERENT stamps free with approvals. 4½d. postage. — Salter, 42 North Road, East Dene, Rotherham.

STAMPS FREE — Empire Packet including Pictorials and Victorians with approvals. — Robert J. Peck, 7A Kemp Road, Bournemouth.

BECOME trained chiropodist. Quick postal, practical. — GRADUATE SCHOOLS, 48a Abbey Street, Accrington.

MAKE A MUSICAL BOX for as little as 21/6. New kits and tunes available. Movements 14/9 post free. Please send 3d. stamp for free illustrated catalogue. — The Swisscross Co., Dept. B., 116 Winifred Road, Coulsdon, Surrey.

ANIMAL CUT-OUTS

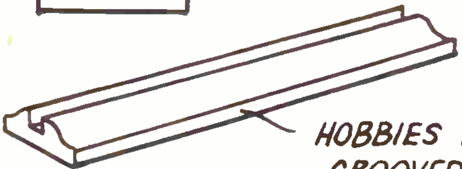
USE YOUR FRETSAW

USE these caricatures of fawns to brighten your table for a party or special dinner. Make them up to sell as novelty ticket stands for shops, or colour them carefully and use them as ornaments.

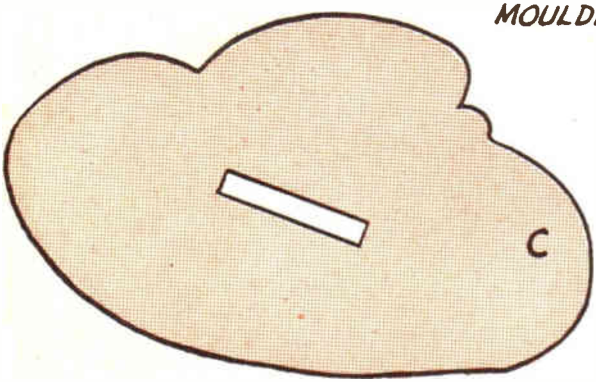
Two shapes are shown, right (A) and left hand (B) and both are cut from $\frac{1}{8}$in. plywood or hardboard and coloured with enamel. Use pale brown for the body, white or dark brown for the spots and green for the grass.

Mount them on shaped bases (C), cut from $\frac{1}{4}$in. wood, or use Hobbies No. 48 grooved moulding as illustrated. In the latter case the tenons must be omitted from (A) and (B) and the animals glued straight into the groove of the moulding.

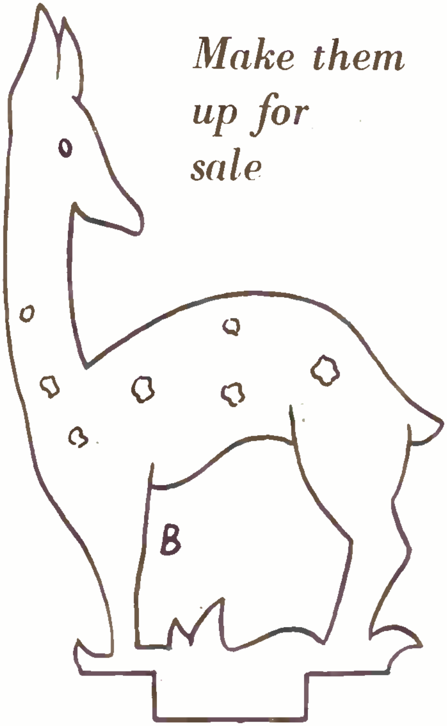
Place names for the party table or price tickets are written on good quality white card and held in place by a small tab of transparent adhesive tape at the back. (M.p)



HOBBIES No.48
GROOVED
MOULDING



Make them up for sale



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.

HOC

makes you an expert... *easily!*

It's not difficult to be an expert with the BRITFIX/HUMBROL combination... tried to the qualities which the Handyman needs... tested to the requirements of the do-it-yourself man. And—more than ever—produced to give that 'professional' look... That's the way with H.O.C.—you can see-it-yourself when you do-it-yourself!

FOR WORKING IN WOOD OR PLASTICS . . . .

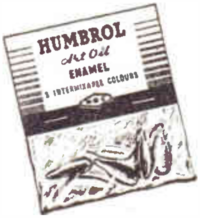
Humbrol Art Oil Enamel, a 4-hour lacquer enamel which dries with a brilliant finish. Is most suitable for the handyman about the house, being ideal for touching up all decorative household and workshop utensils.

BRITFIX TISSUE PASTE. A specially prepared paste for aeroplane tissue providing exceptional adhesion and non-staining qualities.

BRITFIX CEMENT. The finest all-purpose adhesive made. Transparent, water and heat proof, BRITFIX CEMENT combines rapid drying with the utmost tenacity.

BRITFIX PLASTIC POLYSTYRENE CEMENT. A high quality polystyrene adhesive, combining quick drying with excellent adhesion. An ideal companion to Enamel

BRITFIX COLOUR DOPES, fast drying, clean and bright, smooth and easy to work with.



HUMBROL INTERMIXABLE PAINTING KIT. Humbrol Art Oil Enamel Kit–6 intermixable colours in capsule form. An economical method of application for the Handicraft Worker.

HOC *the choice of the expert!*

Send to-day for FREE Humbrol Colour Card,

THE HUMBER OIL CO. LTD., MARFLEET, HULL.