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**Hobbies**

*FREE design  
inside to  
make  
this  
handy*

## BED-TRAY OR BOOK-REST

THIS design has a twin appeal — it can be used as a bed-tray for serving invalids with their meals, and as a bed book-rest for ease of reading when they are convalescing. The assembly consists of a tray top and legs which are pivoted together.

The tray is a handy size for containing all the patient's meals, and has been designed to facilitate easy cleaning, the corners being left open. The awkwardness generally associated with reading in

bed is eliminated when the rest is used for this purpose.

All the measurements are given on the design sheet. Mark and cut out the tray from  $\frac{1}{4}$ in. plywood, making provision for finger holes and rounding the corners.

The tray moulding should be glued and pinned about  $\frac{1}{4}$ in. in from the edges of the tray (D). Tray moulding can be purchased separately, or if desired, a suitable moulding can be planed down from stripwood.

On the underside of the tray, glue and pin centrally and 18ins. apart (full), two pieces of 1in. by  $\frac{1}{2}$ in. stripwood 12ins. long. Their positions can be seen in diagram (E) on the design sheet. Note the rounded ends where the tray will be pivoted to the base.

The construction of the base is shown in diagram (F). All the necessary measurements are given and the entire framework is cut from 1in. by  $\frac{1}{2}$ in.

•Continued on page 338

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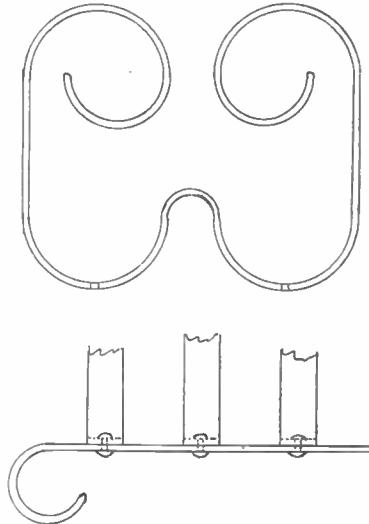
*For Modellers, Fretworkers  
and Home Craftsmen*

*An attractive medium*

# TOAST

BENT ironwork was once a very popular hobby but now seems to have somewhat disappeared into obscurity. Some of the craftsmen of this art have turned to a comparatively new material which is very easy to work with and will produce quite an attractive article.

The introduction of the flat aluminium rail as used for hanging the valance or pelmets in our windows has opened up a new craft and one which should appeal



to many readers. Valance rail is of pleasing appearance and although it can be bent quite easily it is remarkably strong and is clean to use.

You may find it easier to drill the rivet holes before shaping the base bars and the size of these will depend on the rivets used. They should however not be larger than  $\frac{1}{8}$ in. as this would weaken the bars. One hole is drilled in the centre of each bar and two others on either side at a distance of 1in. between the centres. Slightly countersinking the holes will remove any burrs and enable the rivets to enter them with ease.

#### The centre piece

For the centre piece of the rack which also acts as a handle you will need 22in. of rail and this is bent to the shape shown. Two holes are drilled for fixing it to the base so that the bars are 2in. apart.

Cut four lengths of rail 16in. long for the side partitions and bend to shape. These may be riveted to the base strips in either of two ways — as illustrated, or with the pieces reversed and fixed with the coiled ends at the bottom.

Several kinds of rivets are available

# RACK IN METAL

and you may prefer to use a piece of soft wire hammered over on both sides. They can be of aluminium, or a pleasant contrast is to use copper and the warm tone of the metal goes very well with the grey of aluminium.

This short article should have given a very good idea of the extreme usefulness of valance rail and the many articles which can be made with it. Try designing a wall bracket for electric light or hall lantern, candelabra, plant holders or even a fire screen.

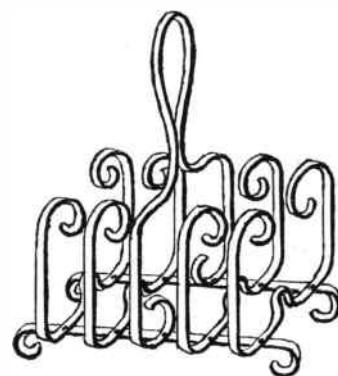
Few tools are needed and the work does not call for any great skill. Most of

*By A. F. Taylor*

the articles that are wrought with bent ironwork can be made equally well with valance rail. Once having tried out this new material you will, like the writer, want to go on with the work and create fresh designs.

The neat little toast rack depicted on this page is an excellent article on which to make a start. It was designed for a small household but can easily be enlarged if this is necessary. The material is clean in appearance and fit to grace any meal table.

The rack is built up on the two bars which act as feet and these should be made first. Cut off two lengths of valance rail 9ins. long with a hacksaw and make



the ends quite smooth with a file. The appearance is improved if the ends are rounded instead of being left square and this can easily be done with a file before bending to shape.

#### Obtaining the curves

To obtain nice curves without any sharp angles or straight portions the material should be bent round a former such as a broom handle or dowel rod. Aluminium rail is generally fairly soft and you can use a former of the same size as the curve you require. Should you be using brass or a tough aluminium rail however the formers must be somewhat smaller as the coils will open out a little when released owing to the springiness of the materials.

● **Continued from page 337**

# Bed-Tray or Book-Rest

stripwood. Each joint is halved as indicated by the enlarged details on the design sheet. Fix these joints by gluing plus pinning if desired.

The completed base and tray are pivoted together by two roundhead screws. Holes should be bored in the members under the tray, so that the action when pivoting is easy. Before screwing into the base, holes should be started to prevent splitting the wood.

Now add the lid stay as shown at (E). The exact positioning so as to give the correct angle for reading when used as a book-rest can be ascertained by trial and error before fixing with screws.

The two parts of the spring clip are now screwed in position, one on the back of the tray and the other on the base, as shown at (E). These hold the tray fast for serving meals.

Any heads of pins can be filed flat or

#### Buy a Kit

For making this handy Bed-Tray or Book-Rest you can get a complete kit costing only 13/6. It includes all wood and fittings and is obtainable from branches etc., or post free from Hobbies Ltd., Dereham, Norfolk.

punched home and filled with wood-filler. Clean up and finish as desired, ensuring a nicely rounded effect for the finger holes. Remember that lacquer easily wipes down — an advantage with trays of this nature — and light colours such as pale blue, pale green or white are suggested. The addition of a transfer or transfers will also add a pleasing effect.

*A radio for 3 gns.*

# MAKING COILS FOR 5-VALVER

LAST week we gave details for building a five valve mains radio for 3 gns. and we now deal with the making of the coils. First, the coil formers themselves. Paxolin tubing can be used, or 1½in. diameter Bakelite formers can be obtained at 3d. each from Annakin's. (The teeth on these should be filed off.) However, excellent coils can be made from the cardboard tube on which toilet rolls are wound. These are usually 1½ins. in diameter. One tube, cut in half, will provide two formers. These are dried in a low oven to dispel any moisture, then either dipped in wax, or

*By A. Fraser*

well varnished. When dry, prick two holes about ¼in. apart and thread the wire through, leaving an end of about 1in. or so. Wind the wire round the tube, keeping the turns close together. When the end of the winding is reached, prick two holes again and thread the end of the wire in and out again, leaving about 1in. end.

Leave a space of about ¼in. and make the small primary winding in exactly the same way, winding in the same direction as before. Make two coils, exactly similar.

Formers of 1in. to 1½in. diameter are convenient and figures are given for 1in., 1½in., and 1¾in. diameters. Use 32 gauge enamelled copper wire. For 1in. formers, wind 108 turns (1·3ins. long). For 1½in. formers wind 82 turns (1in. long). For 1¾in. formers wind 70 turns (¾in. long).

These will give a good medium-wave coverage. The smaller primary winding should consist of a quarter to a third of the number of turns on the large winding, in each case.

## Matching the tuning circuits

In order to match the two tuning circuits closely, trimmers must be mounted over the coils. These can be seen in the drawings. 6 or 4 B.A. nuts and bolts can be used to fix the trimmers to the coil formers.

As can be seen from Fig. 5, in both coils, one end of the trimmer is joined to the top of the main winding, while the other end of the trimmer is joined to the bottom of the main winding. Fig. 5 makes clear the connections for each coil. It will be seen the aerial coil is above the chassis, while the H.F. coil is below.

To attach the coil to the chassis, fix a piece of wood in the bottom of the tube

by means of thin nails, and pass a screw through the chassis into a hole bored in the piece of wood.

All that remains after the wiring, etc.,

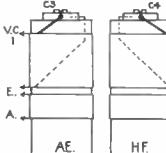


Fig. 5

is to fix the drive spindle in the front side of the chassis, the same distance from the corner as the volume control (2½ins.). Mount the drive drum on the condenser spindle and attach the spring and drive cord.

This is only temporary, so do not cut the cord. The final arrangement of the cord, etc., comes when the dial and cabinet are dealt with in a future article.

Now, make a final check and re-check of the wiring to ensure all is correct.

Set the trimmer on each coil at half-way position. Turn the vanes of the tuning condenser completely out.

Plug in the aerial and plug in the mains. Switch on and turn up the volume about half way. Slowly turn the tuning control until a distinct station comes in, then adjust the trimmers until maximum reception is obtained. A trimming tool can be made from a plastic knitting needle filed down to fit into the screw head. Do not use metal trimming tools.

If instability arises at all, uncouple the detector valve, by breaking the connection of R4 with the H.T.+ rail, and inserting a 47K resistor. Join the junction of the two resistors to chassis through a 2, 4 or 8 mfd. condenser.

## Four-valve version

Where the reader is attracted by the four-valve version (mentioned in last week's article) because of its cheapness and smaller chassis size, then he will not need the following:—valve three (EBC33) and holder, condensers C10 and C11, resistors R6, R7, R8. The position occupied by this valve will now be taken by valve two, which is wired exactly as in the diagram. Valve one and the next one moved up to be beside valve two as before. The only difference in connection after this is that the lead from the volume control (through the chassis) now goes to the top cap of valve four, the output valve EL32. The original lead from EBC33 is dispensed with.

In the T.R.F. version, the 2 meg. volume control may appear rather fierce in action. In this case, join a ·5 meg. or meg. resistor over the volume control tags (i.e., between chassis and C9 tag). The middle tag on volume control goes through chassis to EL32 top cap.

For economy, the chassis of the set is directly connected up with the mains. So, for your own safety, never touch any metal part of the set while it is plugged in to the mains.

A further article will show how to convert this model to a superhet.

## Photographer's Electronic Timer

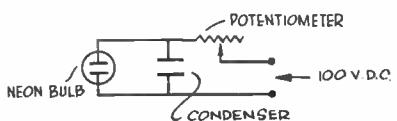
DETAILS of how he made a simple little electronic timer for use in the darkroom have been submitted by J. J. Kerby, of Durham.

A neon lamp with a striking voltage of 90 volts was bought from a surplus supply store for 2/-, and a socket holder for it was mounted on a cigar box. The volume control potentiometer from an old wireless set was mounted through the lid. The circuit was then connected up as shown, with a 0·8 microfarad condenser in parallel with the neon bulb.

As this circuit does not work on A.C. mains through a transformer only, a 100 volt battery was used. The potentiometer was turned down and the lamp went out. After a second or two it flashed on and off again. This was due to the condenser charging up to the tube striking voltage, when the bulb flashed,

discharging the condenser, and so on.

Thus the lamp continued to flash regularly at short intervals from about ½ second to about 3 minutes, according to how far the potentiometer was turned up, regulating the amount of current



flowing. The only thing left to do was to calibrate a dial on the lid of the box. This done, quite a reliable darkroom timer had been made.

One good point about it, adds Mr. Kerby, is that the neon lamp glows red, therefore not affecting normal photographic papers or orthochromatic film.

*A fascinating medium*

# PASTEL PAINTING

PASTEL painting has always had its devotees and quite understandably, too, for it has evident advantages compared with other forms of painting. In the first place, it is a direct medium—one paints as one draws, in fact, it can be described as colour-drawing. There is no trouble with palettes and brushes, water or oil, no preliminary mixing of pigment, no waiting for previous layers of paint to dry before one can proceed. All of this is eradicated—drawing commences straightaway with the taking up of the pastel crayon or stick. When

By A. Fraser

the painting is finished, there is no cleaning up of palettes, brushes, etc. The pastels are simply put back into the box.

Apart from these advantages, pastel has its own intrinsic character for which it stands on its own without compare. The most obvious quality it possesses is its surface or textural quality. Being basically dry powder pressed or rubbed on to the paper, it has all the airy, light, velvet-like qualities which such a process gives. Pastel alone has this peach-like bloom and is one reason why it can be so fascinating. The directness and simplicity of method of pastel are moreover highly attractive, and in addition, it is quite inexpensive. This should recommend it to many.

## Make your own crayons

It is quite simple to make one's own pastel crayons, and how this can be done will be described. Making one's own pastels is advisable, not only because it is cheaper, but because the pastels can be made to suit one's particular requirements. Special colours and tones can be made for which one has special predilections. Just as important is the fact that one can decide what softness or hardness to have, and obtain it to one's satisfaction. Experience will show what degree of softness comes best to one's hand, for the most part, while it will be found that certain parts of the picture will need a somewhat hard pastel to give a sharp clean line or touch.

The shape of the pastel can be made to suit circumstances, as well. A large flat lump is very useful for broad areas, or for putting in a single broad touch. It is also useful for 'dragging' over portions to give a broken speckled effect. There are many possibilities in technical process.

The shape of the end or point of the pastel can be exploited by the clever craftsman. The pastel section can be round or square or oval, etc. Each will give distinctive touch forms which can be used to advantage.

Much time can be spent most profitably by merely experimenting with degrees of softness and with varieties of shape. The possibilities will soon be observed and will prove invaluable when a proper picture is attempted.

It is best to procure good powder colours. If these cannot be obtained locally, Robersons of London can supply them. The address of this firm was given in the 13th June issue in an article on oil painting, together with prices.

The colours will rarely be used in their pure intense form and almost invariably will have to be mixed considerably with white and greys of various degrees, to obtain the colour tones commonly used. This means a little bit of apparently expensive colour will go a very long way, and turn out to be cheap in the end.

## Few colours necessary

Few colours are necessary, as these can be mixed together to produce others. The choice will naturally depend on one's own tastes and the subjects painted. White is the colour which will be needed in comparatively large quantities. Zinc white is best, but this can be 'cut' with good quality whiting, if necessary, to reduce expenses. Too much whiting should be avoided as it has poor covering power. Zinc white in comparison gives a really dense white.

After white, primary colours red, yellow and blue are indispensable. Alizarin Crimson and Cadmium Red are recommended as reds. Cadmium Yellow and Cobalt Blue and Prussian Blue complete the primaries. Purples, greens and oranges can be obtained from mixtures of these. Ivory Black is necessary, while Yellow Ochre, Raw Umber and Light Red will be useful.

Mixing the colours will be a real lesson in colour science. One will be astonished at the countless colour-tones that are possible. One cannot mix all these, of course, so it is best to select what one believes to be suitable. Experience will soon tell what colour tones are really necessary.

As a start, it is obvious that the white pigment can be mixed with the black to produce various shades of grey. As an experiment, get a large sheet of glass and on it mix your white and black powders to make, say, five (or more) little heaps of grey ranging from white down to black. Place these heaps in a line along

one edge of the glass sheet. Use a palette knife for mixing.

Now take one of the primary colours (e.g. red), and mix a slight sprinkling of this with the white heap, to produce a very pale pink. Take a portion of this pink heap and make another heap further down by adding to it a little more red. Continue doing this until you have about five heaps varying in colour from white, through pink to deep red.

Do the same with the other heaps of greys, and it will be evident what variety can be got from mixing just one primary colour in various proportions with a series of grey ranging from white to black.

All the primary colours should be treated thus to see their potentialities. Then the primaries can be mixed to produce secondary greens, oranges and purples, and these secondaries themselves mixed with the greys. An incredible number of colour tones can be produced in this way.

A note should be made of those which would appear to be the most useful. Remember the method—mix the correct proportion of primary or secondary colour with the grey of the correct tone. In this way any colour tone can be produced any time. White, black and a spectrum colour are all that is necessary.

When making the pastels proper always mix the powders first. This gives you the correct colour tone. Mixed wet, they will appear very much darker and dry much lighter in tone than wanted.

## Binding Medium

Binding medium is necessary when making the pastels in order to hold the powder together. There are many adhesives. Glue, size or gelatine dissolved in water can be used. So also can gum arabic. These sometimes make the pastel brittle, so honey or sugar are often used to counteract this. Starch and flour paste (made by scalding with hot boiling water and stirring), can be used. Ordinary milk can even be used, while good results are also possible with soapy water. The list could go on, but the reader can experiment and find what suits him best.

It is important that the binding medium should be weak in adhesive power, otherwise the pastels will be too hard and difficult to draw with. The weaker the adhesive value, the softer the pastel. Anyone who has worked with a hard pastel and then with a really soft pastel will know how delightful the difference is.

Using white pigment (zinc and whiting) for trial purposes, mix a little of the

binding medium with it to make a stiff paste. One should be able to mould it with the fingers like putty. If it feels sticky, then the glue is too strong. Roll the paste between the palms of the hand, as one does with Plasticine, and make a rough crayon.

#### Experiment

Let this dry completely, then try the pastel on paper. It should draw without much pressure and should not crumble or break easily. Commonsense will tell whether the crayon has overmuch or too little binding medium. One must experiment until the correct strength of binding medium is found, and then make a note of the recipe.

While some of us will be content to mould the pastels by hand, others may want to make a simple mould of wood in which to press the paste and so produce a professional looking job. The mould should be in two parts and the insides should be slightly greased to prevent the pastel sticking. With moulds, the section of the pastel can be made square or oval, or round, as one wishes.

As each pastel is formed, lay it out on a sheet of newspaper to dry off gradually. Do not use artificial heat to hurry on the process.

When dry, the pastels can be covered with thin paper to keep the fingers clean. Thin typewriting copy paper is good for this, but any thin paper will do. Glue or paste only one edge of the paper as in the manner of cigarettes.

Pastel paper may be had ready made, but one can prepare one's own quite easily. Use thick strong paper or board. Cover this with a layer of starch paste (or one of the new wall-paper adhesives) and while still wet, sprinkle thoroughly with pumice-stone powder. Then knock the board edge on the floor to shake off any surplus pumice which hasn't sunk into the paste. This will give the slightly toothed surface which pastel needs as the pigment powder holds better.

#### Care in handling

Because pastel is essentially powder impressed on to the surface of the paper, it is open to danger. Very soft pastel lightly applied can easily be blown or shaken off, so great care should be used in handling pastel paintings. To prevent the pastel powder being dislodged it is often 'fixed' by spraying it with some special adhesive, the theory being to glue the particles of powder together from above.

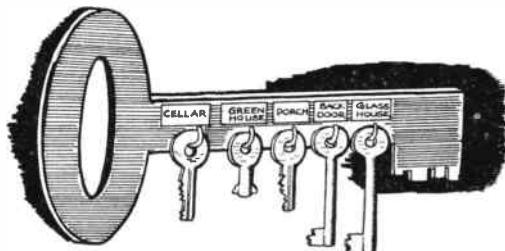
Unfortunately, some of the powder is bound to collapse and float down with the adhesive, so destroying that velvet quality which distinguishes untouched pastel. For this reason, many pastellists are opposed to the use of fixative.

#### Pastel fixative

However, if fixative is desired, it should be sprayed on extremely lightly with a diffuser. It is disastrous to drown the colour. Special pastel fixative is obtainable and this is recommended but it can be made cheaply at home by dissolving 2% mastic resin or white shellac in methylated spirits.

Finally, when mounting your pastel picture, see that the surface of the painting does not touch the glass. Cardboard should be used to step it back off the glass, and the junction of the glass and picture should be sealed along all the four edges to keep out any dust.

After some practice at pastel painting visits to the art galleries where there are pastel exhibits will be very instructive. Examples of the French pastellists, such as Quentin La Tour, will show what can be achieved, and the portrait heads of the Englishman Eric Kennington will inspire any student.



In a household which has a large assortment of keys, items which frequently go astray, the key holder illustrated in this article will be most useful.

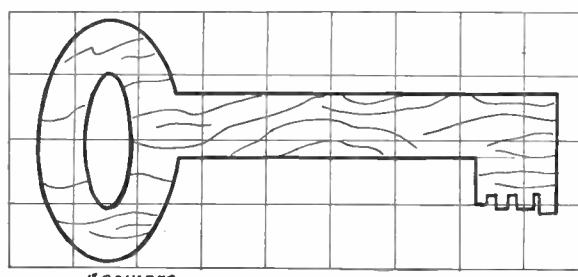
Experienced fretworkers will find little difficulty in cutting out the holder but it has been deliberately simplified so that beginners in woodwork will experience little difficulty. The key holder can be cut from plywood in almost any thickness. Measurements have been given in the squared gram and it is a simple matter to transfer these to the wood. Space has been made for five or six keys on the illustrated key holder but it is easy to extend or reduce its size from the gram.

Cup hooks are screwed into the key holder and these support the keys. Identifying labels are cut from paper. A different coloured paper for each key could be used for the appropriate markings. These are firmly stuck in position with a strong adhesive and the whole key holder is then varnished. Picture-hook rings are screwed into each

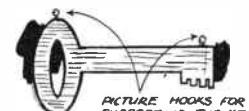
end of the key and thin wire or coloured cord (if you feel like adding extra brightness) is attached.

The key holder ought to be hung

within the reach of everyone, including the children, and in this way everyone in the family will soon learn to replace the keys after use. (J.M.)



CUP HOOKS FOR KEY RINGS.



PICTURE HOOKS FOR SUPPORTING THE KEY.

# A NOVEL 3-D PICTURE

HERE is a novelty that will appeal to ship model-making readers, and, indeed, to any readers who are lovers of ships and the sea. It is, in fact, a picture that is modelled in three dimensions. It is a new and interesting way of using those excellent miniature Galleon designs issued by Hobbies Ltd. The first one I made was based on design No. 3014, the *Bonaventure*, and it made a most attractive item.

## Many Subjects

The methods used can be applied to any miniature ship designs; in fact modellers can choose other interesting

that is the left side of the ship looking forward. Shape the hull to the curves as you would if making a full hull.

The next piece to cut is the deck to fit the top of the half hull, so we have to cut it as in Fig. 2, leaving the mast holes and piece to fit on top of the keel. The other decks (pieces 5, 6, 7 and 8), have to be cut in the same manner, as shown by the sketch of the forecastle, piece 5 on the design.

Of piece 4 we need only one. This and the decks can now be glued in position on the hull and left to set.

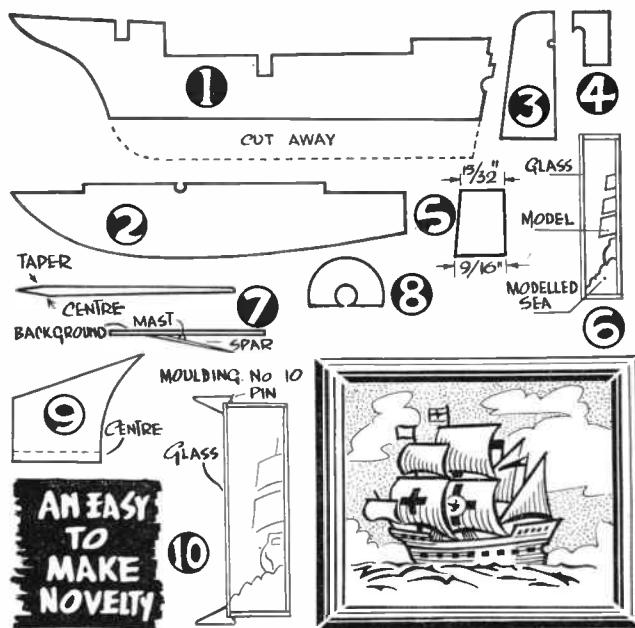
The sternboard, piece 9 is cut as in Fig. 3 and glued in place, this being fol-

shallow box by adding four sides made from  $\frac{1}{8}$  in. wood. Glue and pin them to make a strong job. These sides need to be  $1\frac{1}{4}$  ins. wide. This will give a box deep enough to take your model when the sails are added.

## Light background

Now, on a piece of cartridge paper 14ins. by  $10\frac{1}{4}$  ins., paint the sky background. Keep it light to show up the model. Pale blue, with white cloud formations is the best. This is better done with artists' water-colours.

When painted and dry this is pasted on to the inside of the box, covering the background, the top and two sides. The bottom is covered with the model sea, rising gently to the back of the frame as in Fig. 6. To model the sea various mediums can be used. It can be carved in wood, made from putty, Plasticine, or Plaster of Paris. Whichever medium you use, do not overdo the movement. All



items. A 'clipper' ship makes a beautiful model of this type, or one of our modern liners would make an interesting subject. The aim is, of course, to produce a picture having depth. Thus we do not require a lot of detail, but mainly an overall effect.

To proceed with the *Bonaventure* first cut the keel piece. This has to be cut to the waterline only as in Fig. 1. This means we have to cut off the lower  $\frac{1}{2}$  in. of the keel.

We next need three hull blocks, two of  $\frac{1}{8}$  in. thickness and one of  $\frac{1}{4}$  in. thickness. Glue these to the keel piece according to which way you want the ship to face. In this case we will follow my own model and glue them to the port side of the keel. For new readers

lured by piece 10, the beak-head, cut as in Fig. 4. We now cut one bulwark or upper side piece (11) and glue it in place on the hull, followed by one gallery side and the gallery end cut as in Fig. 5. When one each of the fore, main and mizzen channels are cut and glued in position, the little hull is complete.

We now have to consider mounting the model hull ready for completion. The size of frame will depend upon the model chosen. For our present model we require a background piece 11ins. by 9ins. A piece of  $\frac{1}{8}$  in. plywood will do excellently for this. Backgrounds can be curved or shaped in various ways, but for our present model we will use the simple box type framing. Take the background piece and make it into a

*Designed by  
'Whipstaff'*

that is needed are small ripples at this small scale. Paint the sea green, with a touch of white around the ship, mainly at the bow and in the wake.

The hull having been painted according to the design instructions, glue it on to the background, pressing it down on to the modelled sea.

While waiting for this to set, prepare your masts as per the design, and glue them into the mast holes and against the background.

## Spars, sails and rigging

The spars for the sails are prepared next, and these are tapered as on the design. The spars for the square sails (25, 26, 27 and 28) must be cut  $\frac{1}{8}$  in. past the exact centre and bevelled to fit against the background as in Fig. 7. The two mizzen spars do not need cutting owing to the slight angle at which they are set, otherwise we would have the model looking awry with only half the lateen-sails showing.

Glue the spars to the background and masts, the upper sails slightly more inclined away from the background than the lower sails, as they would be on a ship under sail. Before adding sails and flags put up the standing rigging. This consists in this case of the port

• **Continued on page 343**

# A FITMENT DRYING RACK

AFTER having a general wash up following experiments it is a problem where to put the apparatus to drain and dry satisfactorily. Wiping the glassware dry with a cloth is unsuitable, for fibres stick to the vessels. When next you make up a solution or pour a liquid into the vessel, those fibres

— ample for all ordinary test tube and beaker draining. The pegs themselves are  $4\frac{1}{2}$  ins. long and when inserted into the wood protrude some 4ins. They are cut from dowel rod. Their thickness is immaterial, but  $\frac{1}{8}$  in. dowel is quite strong enough.

For the pipette holders (Fig. 4) two pieces of wood  $4\frac{1}{2}$  ins. by 2ins. will be needed. The broken lines make centring easy. In the upper holder (A) the holes are sawn or drilled  $\frac{1}{8}$  in. wide. This section is, of course, simply screwed into the cut-out on the back board. The

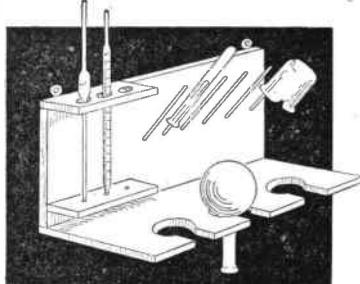


Fig. 1

will have to be filtered out. The real answer is an apparatus drying rack, such as that shown in Fig. 1. After shaking out the surplus water the glassware will soon dry on this. A useful tip, by the way, is to use a little liquid detergent to wash your apparatus after cleaning out the chemicals. By removing grease films, the detergent gives true scientific brilliance.

#### Simple construction

As will be seen, the rack is simple enough to make, yet it provides places for flasks, test tubes, pipettes and beakers. Wood  $\frac{1}{8}$  in. thick is used throughout. A start should be made with the base (Fig. 2). Cut this 6 ins. wide by 12 ins. long. To position the flask slots and holes centring lines should be pencilled on the wood, as shown by the broken lines in Fig. 2. It will be noted that one slot is wider than the other two. This is a special provision for the odd flask with the short wide rolled neck, but it will also serve for the normal neck. After cutting out these sections with the fret-saw, the four screw holes should be made and countersunk beneath. As the load will be light, screws alone will hold the base to the back board.

The back (Fig. 3) is also cut 6ins. wide by 12ins. long. The cut-out to take the upper part of the pipette holder is  $4\frac{1}{2}$  ins. long and  $\frac{1}{8}$  in. deep.

The slot for the lower holder is 2ins. long by  $\frac{1}{8}$  in. and is positioned as shown. The drainage pegs are cellulose cemented in the holes at an angle of  $45^\circ$ . Starting  $\frac{1}{8}$  in. from one end and allowing  $1\frac{1}{2}$  ins. between each, there is room for six pegs

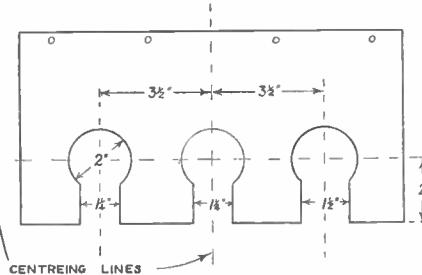


Fig. 2—Base

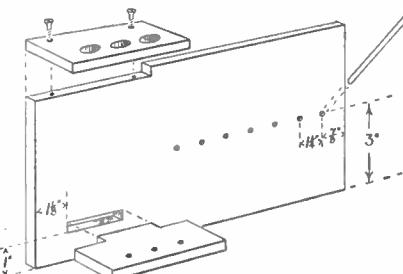


Fig. 3—Back

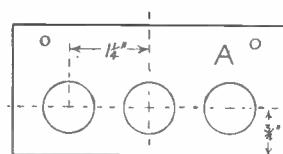


Fig. 4—Pipette holders

lower holder (B) is cut as shown and cemented into the back with cellulose cement. The holes in this case are only  $\frac{1}{8}$  in. wide. These support the tops of the pipettes clear of the base and so allow free air circulation and hence quicker drying.

A coat of paint or varnish renders the rack waterproof. Two eye plates, preferably brass, serve for hanging the rack on the laboratory wall. (L.A.F.)

●Continued from page 342

## Novel 3-D Picture

side shrouds only and the mast stays. The mast tops can be left out if you wish, but if you add them, they must be cut as in Fig. 8 and glued around the mast and against the background.

#### Adding the sails

The sails are next. We need the port side of the square sails. These must be cut  $\frac{1}{8}$  in. past the centre line as in Fig. 9 and are glued to the spars in the usual way, the cut edge being glued to the background. The mizzen spars can be glued to the mast, the bottom point of the spar being glued to the background. This creates a slight angle for the mizzen-sails when glued to the spars and enables us to show the whole of the lateen-sails in the picture. The adding of the flags and the running rigging of the

port side, taking these from the design completes the model.

Now to complete the frame. In my case a piece of picture glass 11ins. by 9ins. was glued to the front edges of the box as in Fig. 10. A frame from picture moulding was cut to fit tightly when mitred at the corners, around the edge of glass and box sides. It was then secured with glue and fine panel pins through back edges of the moulding into the box sides. This is not the strictly orthodox method of picture framing, but it does ensure what is very essential in this case, dust-proof joints.

This finishes an interesting little novelty and I would be pleased to hear from any readers if they have any suggestions for items they would like to see featured in the Shipmodeller's Corner.

# Comments on 1956 Entries

**A**LTHOUGH the entries for Hobbies 1956 Fretwork Competition were not so numerous as in the previous year the high quality of workmanship was well maintained and the judges had a difficult task in deciding the final placings of the main winners, whose names are detailed opposite.

The quality of the fretcutting and the finish of the Trump Indicator and Card Box were, of course, the main considerations in the judging. It will be remembered that provision was made in the design for the inclusion of a musical movement. Some competitors sent their entries complete with one — others with no movement. Again some even included packs of cards in their entries! In neither circumstances did these facts have any bearing on the judging although it was nice to see what excellent jobs had been done. Ability to get a clean and symmetrical cut were the chief things looked for.

It was noticed, too, that some competitors had failed to interpret the design properly and did not provide a cut-out in the base in which the trump indicator rested. Parts of other models had come unstuck during transit to Dereham but this was remedied before judging and in any case these points had no bearing on the judges' decisions. Entries received every consideration — of that you can be sure.

The chief award winners in the open section set a very high standard and it took no little amount of consideration before the first twelve were eventually named. And then came a further problem to decide who should have the special vouchers, as there were dozens of entries of an almost equal standard.

## 'Champion' again

The main winners in the open section came from all age groups — a clear indication that fretwork can be done quite successfully by anyone — of any age. As an instance, two winners in the first twelve in this section were aged 16 and 17 and third prize went to a man of 68. In the Junior Section the 14 and 15 year olds sent in the best entries, which is probably only to be expected in view of their possibly greater experience, but it was pleasing to note that a lad of 10 gained a major award.

The title of 'Champion Fretcutter' again goes to Mr. John Burbeck who sent in another piece of work which could not be faulted. Mr. Burbeck, therefore, gained the chief prize, a voucher for £15/15/-, and retains for a further year the Silver Challenge Cup,

which he held as winner last year. Mr. Burbeck also receives a replica cup for permanent keeping, which we hope will pair up quite nicely on his sideboard with the one he won last year.

The cutting, finishing, mitres and all joints in Mr. Burbeck's entry were deemed perfect. His box was made in contrasting shades of wood and the whole article was, indeed, an expression of the work of a craftsman.

Mr. R. M. Edwards' effort which gained for him the second prize, a voucher for £12/12/-, was not very far behind the winner in its execution. In a beautifully stained and polished finish this again was a work of outstanding merit.

## Two entries

Not content with completing the competition design in fretwood, Mr. Sherrard Hamilton also sent along for our interest a delightful box cut out of pink and white perspex. Mr. Hamilton has often featured in the prize lists in Hobbies competitions. He was placed twelfth in 1955 and now moves up to third place, which entitles him to a voucher for £10/10/-. This, of course, was for his entry in wood. Mr. E. A. Hurford gained the £7/7/- voucher for another delightful box which featured two contrasting woods, and Mr. A. F. H. Reeves' effort was remarkable for its beautiful finish and french polish, which gained him fifth prize and a voucher for £5/5/-.

The sixth award (£4/4/-) went to Mr. R. H. Watts, who gained 100% marks for fretcutting but lost ground on his joint assembly. Mr. G. Cattanach, who gained a special prize for finish in 1955, moved up in the prize list (seventh) with another good effort, and in eighth position we were particularly pleased to see Mr. J. Elliott, who is aged only 16. His entry was one of the few submitted which had been finished by painting and he obtained a lovely effect in pastel blue with white overlays and a touch of black on the handle. Congratulations, Mr. Elliott, on competing so well against men with much greater experience.

Second in 1955, Mr. W. H. Woodrow was this year placed ninth, and in tenth position came Mr. R. Bolt with some fine fretcutting. Indeed, with a little more time spent with a glasspaper block and in his finish Mr. Bolt would have gained a more valuable award. The same comment can be applied to Mr. R. Wines, who showed perfect cutting of the overlays and at the joints. Here again longer and more careful prepara-

tion would have resulted in a better finish.

The last major prize in the Open Section again went to a comparative 'youngster', Mr. D. Gibson, aged 17. He had obviously taken great pains to make a really good looking box, but his cutting was not quite symmetrical.

The remarkable thing about the Junior Contest was that three of the main prize winners came from Orkney. Does this mean that boys in the Islands take more care over their work than their cousins on the mainland? It does, however, seem remarkable that from such a small section of the community there should come three winners in a national competition. We can, indeed, visualise some comparing of notes when the results of this competition are made known on the Island.

Another 'islander', this time from the Isle of Man, also sent in a good entry. He was young Alaric Lawrence, aged only 10, whose effort was also noted in last year's comments on the 1955 competition. It is pleasing to see one so young in the prize list. Actually we had allowed for only ten main prizes in this section, but there was so little to choose between Alaric's entry and that of D. Grant that we decided to offer an additional prize.

## Many winners

In addition to the prizes detailed in the list there were many awards of £1/-/- vouchers to runners up and consolation prizes for other entries. Certificates of merit signed by the Editor were also sent to those whose work was considered particularly worthy.

A representative selection of the winning entries, together with the Silver Challenge Cup which goes with the main award, will be on display at Hobbies Stand No. 13 at the Fourth International Handicrafts, Homecrafts and Hobbies Exhibition at Olympia from September 6th to 21st. Many of our readers will, no doubt, pay us a visit there and they will also have the opportunity of seeing some of the fine work accomplished in this Competition.

It would appear that the Design for the Trump Indicator and Card Box was probably a bit too difficult for many of our younger readers to tackle, and so for the 1957 contest it has been decided to give an easier design for junior entrants on the same theme as that for the seniors. This, we hope, will encourage many more entries. The instructions for making this design, which will be for Egg Timers, will be published in the September 12th issue of *Hobbies Weekly*.

# AWARD WINNERS

## OPEN SECTION

### FIRST PRIZE

*Silver Challenge Cup and Replica and Voucher for £15 15 0*

**JOHN BURBECK, BROOK COTTAGE, AVENBURY, BROMYARD, HEREFORDSHIRE**

Second Prize

**Voucher for £12 12 0**

R. M. Edwards, 37 Palmerstone Road,  
Earley, Reading, Berks.

Fourth Prize

**Voucher for £7 7 0**

E. A. Hurford, 1 Old Council House,  
Bradford Abbas, Sherborne, Dorset.

Seventh Prize

**Voucher for £3 3 0**

G. Cattanach, 6 Drapers Road,  
Enfield, Middlesex.

Tenth Prize

**Voucher for £2 2 0**

R. Bolt, 'Dunfield', Aird, Bushmills,  
Co. Antrim, N. Ireland.

Fifth Prize

**Voucher for £5 5 0**

A. F. H. Reeves, 38 Lion Road,  
Edmonton, N.9.

Eighth Prize

**Voucher for £2 2 0**

J. Elliott, 10 Cliff Crescent,  
Pye Nest, Halifax, Yorks.

Eleventh Prize

**Voucher for £1 10 6**

R. Wines, 41 Northville Road,  
Northville, Bristol, 7.

Third Prize

**Voucher for £10 10 0**

Sherrard Hamilton, 277 Badminton Road,  
Downend, Bristol.

Sixth Prize

**Voucher for £4 4 0**

R. H. Watts, 52 Gaunts Road,  
Chipping Sodbury, Bristol.

Ninth Prize

**Voucher for £2 2 0**

W. H. Woodrow, 69 Peveril Avenue,  
Scunthorpe, Lincs.

Twelfth Prize

**Voucher for £1 10 6**

D. Gibson, 113 Salisbury Terrace,  
Darlington, Co. Durham.

## JUNIOR SECTION

### FIRST PRIZE

*Voucher for £12 12 0*

**S. P. M. MOWATT, NEWHOUSE, HUNTSCARTH, HARRY, ORKNEY**

Second Prize

**Voucher for £7 7 0**

Neil Tiller, Walton Common,  
Walton Highway, Wisbech, Cambs.

Fourth Prize

**Voucher for £3 3 0**

C. R. Parris, 67 Everington Street,  
Hammersmith, London, W.6.

Sixth Prize

**Voucher for £2 2 0**

Kenneth Sizeland, Hill Farm,  
Deopham, Wymondham.

Eighth Prize

**Voucher for £1 10 6**

Angus Harcus, Howe, Harry,  
By Kirkwall.

Tenth Prize

**Voucher for £1 10 6**

D. Grant, 15 Slater Street,  
Kirkwall, Orkney.

\* \* \* \* \*

\*

\* 1957 Design \*

\*

\* The Design for the 1957 \*

\* competition is quite \*

\* simple and the subject \*

\* makes an ideal one for \*

\* use as gifts to friends. \*

\* The prize value will \*

\* again total over £200, \*

\* consisting of vouchers \*

\* to enable the winners to \*

\* choose Hobbies goods. \*

\* Watch out, therefore,

\* for Design No. 3176 on \*

\* September 12th, and \*

\* tell your friends about \*

\* this grand free com-

\* petition. \*

\* \*

Third Prize

**Voucher for £5 5 0**

J. Guillebaud, 27 Lansdowne Road,  
Muswell Hill, London, N.10.

Fifth Prize

**Voucher for £2 2 0**

Dennis Curling, 127 Manor Farm Road,  
Bitterne Park, Southampton, Hants.

Seventh Prize

**Voucher for £2 2 0**

Arnold D. Caddy, 34 North Street,  
Bridgtown, Cannock, Staffs.

Ninth Prize

**Voucher for £1 10 6**

Michael A. Cantrill, 33 Larkswood Road,  
Sth. Chingford, London, E.4.

Eleventh Prize

**Voucher for £1 10 6**

Alaric Lawrence, Ailsa Craig, Strand Road,  
Port Erin, Isle of Man.

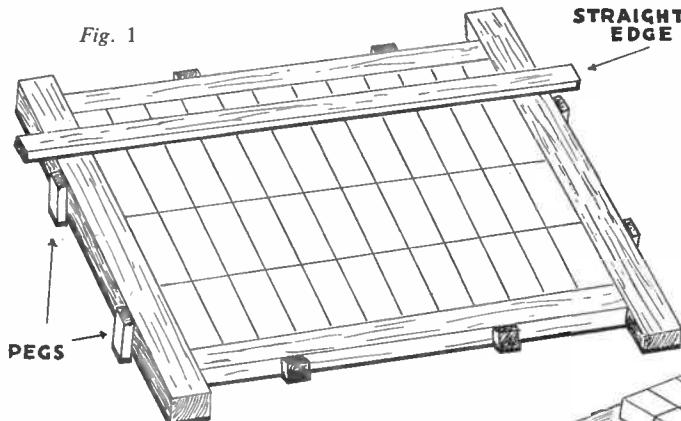
*In addition, vouchers for £1 were awarded to the next best entries and there were numerous consolation prizes. Main winners also receive a handsome certificate of merit.*

**For those odd building jobs—**

# MAKE YOUR OWN BRICKS

**C**ONCRETE bricks for constructing garden walls are quickly made and no moulds are required. All you need are some battens to hold a large mass of concrete in position, while the bricks can be made to any desired size to suit your own particular work

Fig. 1



A common size incidentally, is 9ins. by 4½ins. by 2ins.

The mixture is the most important part of the job and a good mix is 1 bucket of cement, 3 buckets of sand and half a bucket of water. The amount of water may appear on the low side, but it should be sufficient to produce a mix easily placed and giving a good finish. The sand and cement should be mixed together thoroughly in the dry state and the water added gradually until used. When mixed the concrete should be uniform in colour and consistency, with all lumps worked out.

#### The Mould

The mould, if it can be so called, consists of four 2in. by 2in. battens laid on the path, or on a piece of the garden which has been carefully levelled. Before placing the concrete mixture, lay sheets of newspaper on the path and sprinkle a thin layer of damp sand. This prevents the bricks from sticking to the path or being soiled if laid on the garden, besides giving a better finish. The battens may be held in position by pegs as shown in Figure 1, or by means of bricks at the sides of the battens. When positioned, the concrete may be laid in the frame. See that the corners are properly filled and the mixture well rammed home. To keep the top perfectly level, you may work a batten backwards and forwards across the frame, moving the mixture before it, then level off finally with a

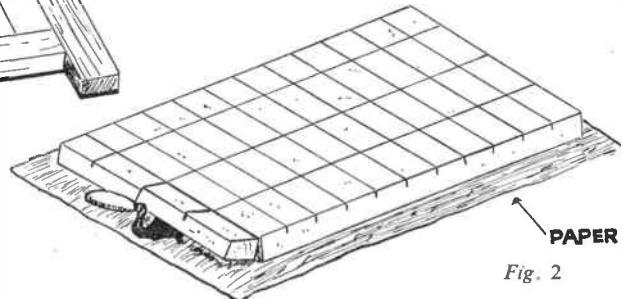
trowel. Fig. 1 shows the concrete laid in position inside the frame.

An hour or so after placing the concrete, the surface can be marked out to the size of the bricks required. A trowel should be used for this purpose in conjunction with another piece of

result, noting that the trowel should only penetrate the concrete to about one third of its thickness. If you refer to Fig. 1 again you will note that provision has been made for half bricks, thus avoiding the necessity of cutting when building a wall.

The large slab of concrete is then left for at least a day, when the bricks may be lifted. This is done with a trowel as shown in Fig. 2. By levering the bricks upwards, they will break away in a length where they have been marked, and it is then a simple matter to break off with rough, natural finish, since maturing is not complete. Before using the bricks they should be stacked for a week and given an occasional watering.

If you are obliged to prepare the bricks on the path, it is most important to



board for a straight edge. Use care in measuring, or unequal sizes of bricks will

remember the sheets of newspaper, or the bricks will stick to the path. (S.H.L.)

## Children's Towel Rail

**T**HIS easy-to-make towel rail with attractive figure cut-outs is sure to appeal to the children. Why not put one in the bathroom at a height within easy reach of the youngsters. They will be delighted to have a special rail of their own.

You need one piece of wood 15ins. by 5ins. by ¾in. for the back piece (B) and two pieces of ¼in. wood for the ends (A),

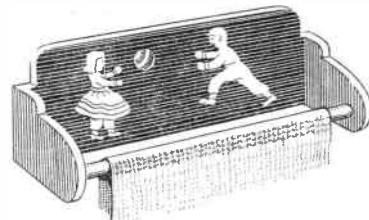
#### Patterns on page 351

which are shown full size on the pattern page. Screw these together from the back, using countersunk screws.

The ends (A) are provided with holes to take a piece of ½in. diameter round rod which should be glued in place.

Finish with plastic enamel paint, rubbing down between coats. Three coats will provide a high-gloss surface suitable for the bathroom.

The figures are cut from ¼in. wood and suitably coloured. Use bright colours for the clothes and a light tan colour for the faces and hands. A circle of wood painted in bright colours represents the ball.



Lay the figures on the back to gauge their positions and scratch away some of the paint to provide a key for gluing.

The rail should be attached to the wall by means of Rawlplugs, using chromium plated round-head screws.

(M.p.)

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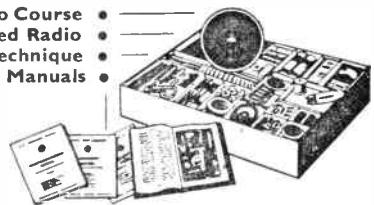
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# CORRECT USE OF STOPS

PERHAPS the most mysterious component of the camera to the average beginner is the function and use of the stops. An analogous comparison can be made with the stops to the iris of the human eye. In both instances the function is the same; that is, to regulate and pass the correct amount of light falling on the retina in the case of the human eye, and on the sensitised film or plate emulsion in the camera.

If we observe the action of the iris, it will give a clear indication as to the intelligent use of the stops. In poor light, the iris is fully distended or opened to permit the maximum amount of light rays to pass. As the light intensity is increased, the iris becomes smaller to limit the passage of light rays. We can thus conclude that the iris is a most efficient light meter, which functions unconsciously and without effort. The stop mechanism of the camera is not, however, automatic and depends upon the experience of the operator or the use of an actinometer to determine and set the stop to the correct figure or aperture.

### Exposure

In spite of the latitude of present day emulsions an incorrectly set stop gives inferior results and, in extreme cases, can ruin an exposure. Take for instance an exposure made in brilliant sunshine in mid-summer with the maximum stop opening. The result would be a grossly over-exposed negative, being completely dense and flat, and when printed would give most unsatisfactory positives. The remedy here is to stop down to the correct figure, or increase the shutter speed, or to use a combination of both.

If on the other hand however, a small stop was used on a dull overcast day, then the result would be under-exposure, yielding a thin weak negative and giving unsatisfactory results as over-exposure. The obvious solution is to increase the stop opening, or decrease the shutter speed, or a combination of both. With hand cameras, however, the shutter speed should not be less than 1/25 sec. when taking snapshots, otherwise camera movement will make itself apparent and will result in blurred, indistinct negatives.

The stop scales on a camera are usually arranged so that each smaller stop requires double the exposure of the preceding one. Take, for instance, the stop scale of most popular cameras; this is usually f8, f11, f16, f22 and f32. Twice as much exposure is required at f11, as at f8, and so on down the scale. It will also be seen that four times as

much exposure is required at f16 as at f8, as the area of the stop is directly proportional to the square of its diameter. This fundamental fact is often overlooked by many amateur photographers, who erroneously think that double the stop No. requires twice the exposure, with the result that their exposures are always grossly under-exposed.

As an approximate guide, exposures taken during April at noon on a bright day at stop f8, speed 1/25 sec. and which yielded a correctly exposed negative, would probably require a f16 stop at the same shutter speed, or conversely a f11 stop at a 1/50th sec. shutter speed at noon during June and July. During August and September there is a slight falling off in the actinic value of the light and the stop should be increased to f11, and thereafter to f8.

The above guide should not be adhered to literally, as circumstances and conditions will, of course, alter cases. Where brilliant sunshine prevails, then the next smaller stop to those given should be used, and where brilliant sunshine is reflected as by the sea or a light sandy beach, then an even smaller stop should be used. On the other hand, if the weather is dull and overcast, or if the photographs are taken appreciably before or after noon, then the next larger stop should be used.

### The actinometer

Of course, the most efficient and dependable method of estimating the correct degree of exposure is by means of an actinometer. The price varies from a few shillings to several pounds, the more expensive models being very quick and efficient in use.

The more modest priced actinometer consists essentially of exposing a slip of sensitised paper in a guide until it assumes a certain hue or colour. The time is taken in seconds for this to happen, and the figure given is compared with a chart which will give the correct exposure required at certain stop and shutter speed readings.

When using such an actinometer as described, the sensitised paper should not be exposed to the direct rays of the sun, but should be exposed in the shade.

A further point which many amateur photographers fail to realise, is that with a smaller stop the focal depth of the camera is increased. That is to say, with progressive reduction in the stop size, the whole perspective of the negative will be brought sharply into focus. It is possible to reduce the stop to so small proportions as to have an infinite depth of field and focus and all objects, both

foreground and background, within the focal angle of the camera will be in identical focus.

This optical phenomenon is the means of obtaining photographs of striking pictorial beauty which the amateur photographer can well achieve with practice and experience.

### Portraiture

Take, for instance, a head and shoulders portrait. It is essential in photographs of this sort to render the background as unobtrusive as possible, so as to project the subject as much to the foreground as possible. The correct method of attaining this result is to focus the subject sharply with the focusing scale, or in the case of a box camera, with a portrait attachment, then open the stop to its widest aperture. If the light is strong and is apt to over-expose the negative at the stop No. used, then correct this by increasing the shutter speed.

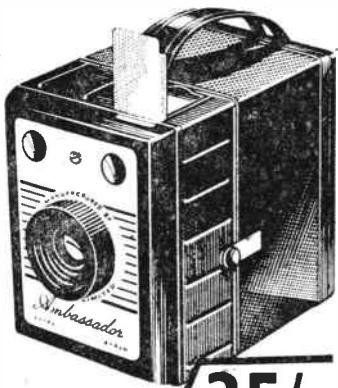
Landscapes or views should always be taken with the smallest stop permissible with correct exposure. A reduction of stop aperture ensures that the whole panorama is crisply in focus, thus yielding beautifully clear and sparkling prints. Of course, it is assumed that the landscape view is taken on a clear bright day, as any suggestion of slight mist or haze will be detrimental to the clarity of the negative. By this observation, however, do not think that it is wrong to take landscape views when slight misty conditions prevail. Far from it. Some of the most striking and beautiful exhibition prints made are from exposures taken in slightly misty conditions. In these conditions, a proper perspective of distance is given to the background, and for moorland or hillside studies, a slight misty effect gives naturalness and charm to the finished photograph.

When taking landscapes, use a fairly fast speed, otherwise you will be troubled with camera shake on the exposed negative. To obviate this as much as possible, the operator should hold the camera firmly within his hands and brace his body against a firm object such as a tree or wall. At the moment of taking the photograph, the breath should be held. Unfortunately, the complete elimination of camera shake when photographs are taken in this way is almost impossible.

The serious amateur photographer is well advised to invest in a small collapsible tripod to ensure that his camera is really steady during exposure. In the absence of a tripod, the camera can be placed upon a firm solid object, such as a wall, a tree-trunk or rock. (E.S.B.)

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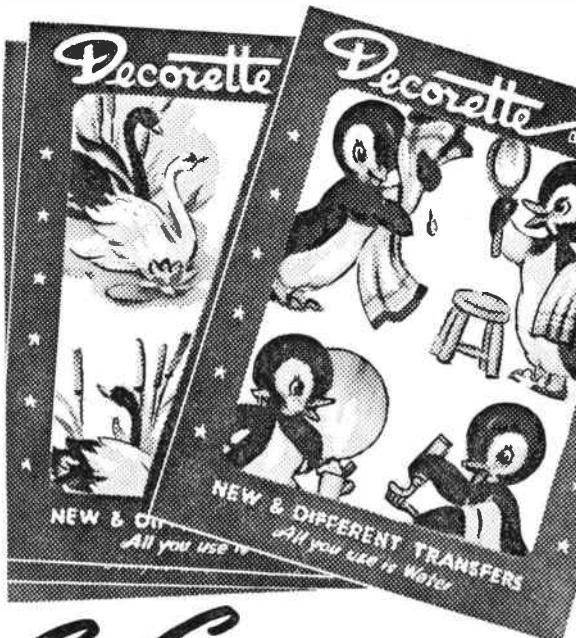
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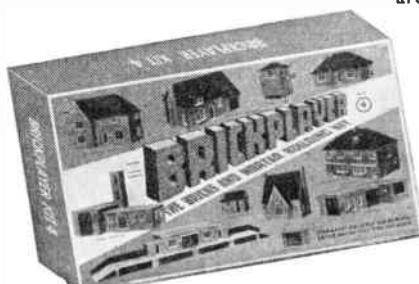
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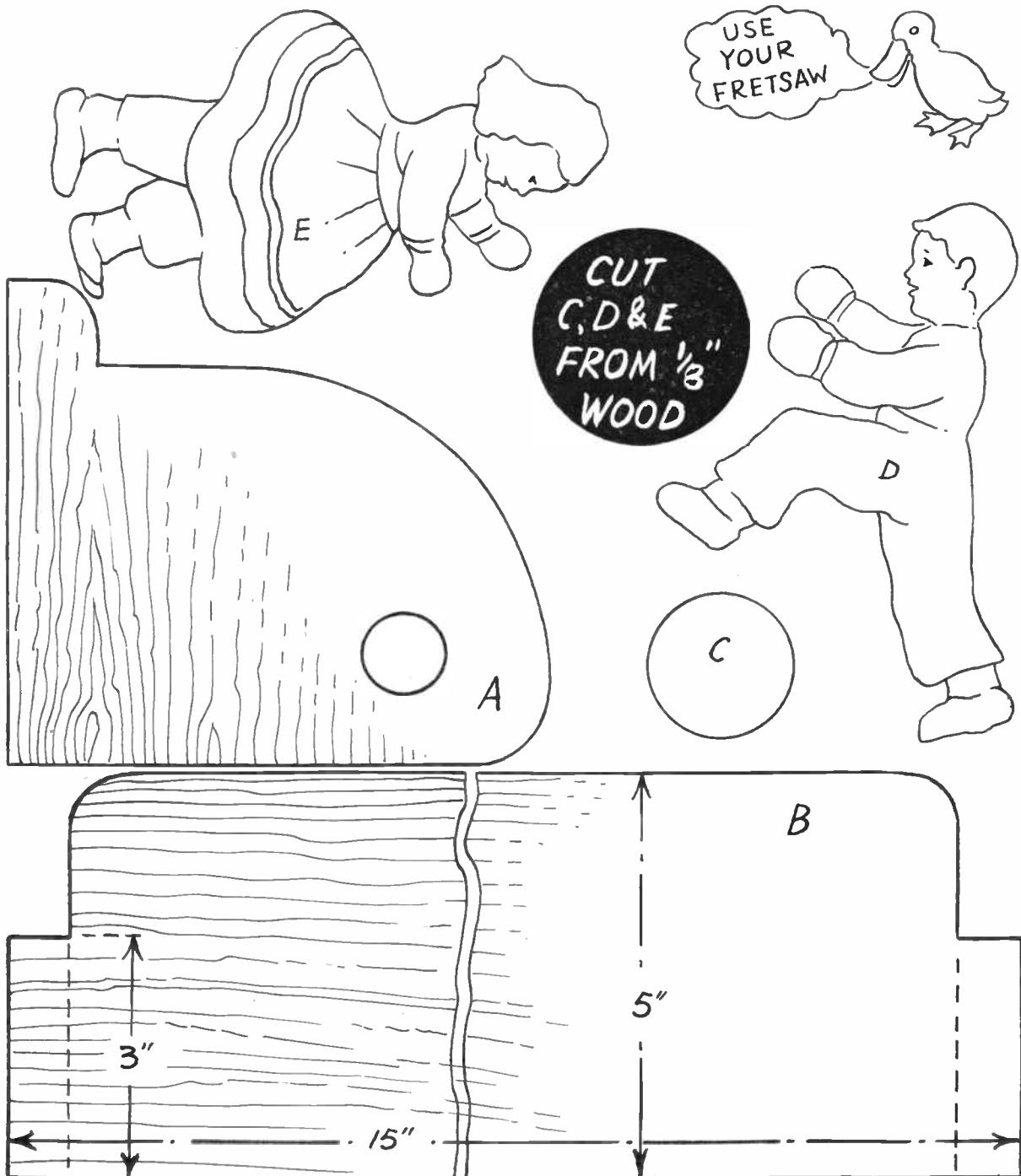
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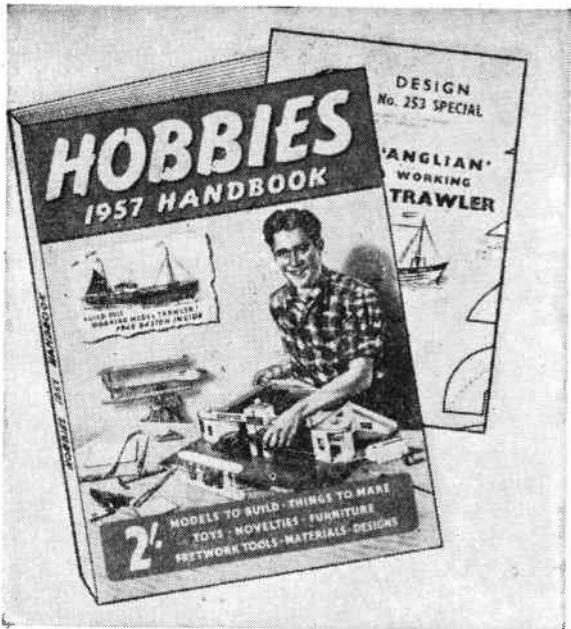
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No. 310 TRAY MOULDING (18 ins. LONG)

24"

No. 310. TRAY MOULDING  
(9 ins. LONG)

3"  
3/4"

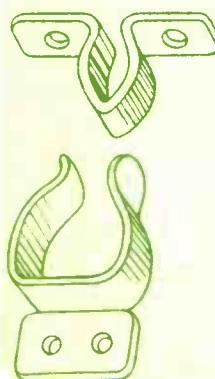
TRAY. MAKE ONE  
FROM 1/4 in. PLYWOOD.

18"

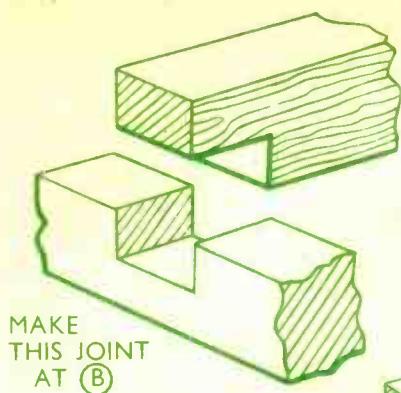
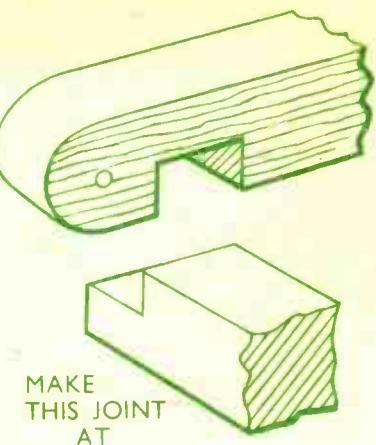
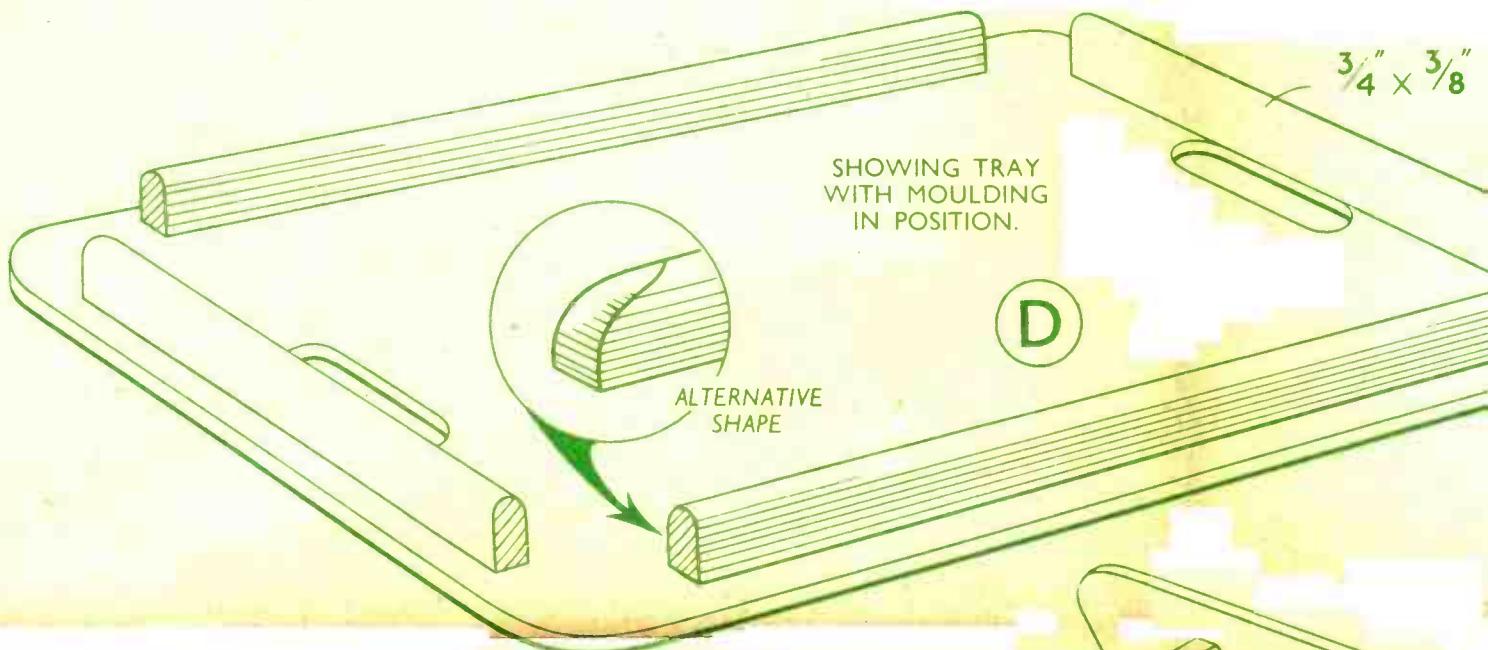
15"

9"

SPRING CLIP ON  
BACK OF TRAY.  
(HOBBIES No. 622)



SIZE — 24 ins.  
BY 15 ins.



ROUND HEAD SCREW

SPRING CLIP

C

18"

B

A

No. 310 TRAY MOULDING (18 ins. LONG)

4"

TRAY MOULDING  
ins. LONG)

TRAY. MAKE ONE  
FROM 1/4 in. PLYWOOD.

18"

15"

9"

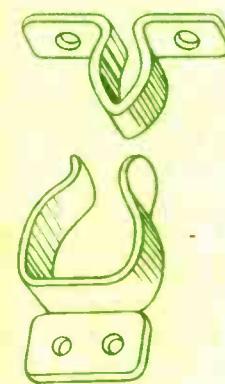
SHOWING TRAY  
WITH MOULDING  
IN POSITION.

D

ALTERNATIVE  
SHAPE

3/4" x 3/8"

SPRING CLIP ON  
BACK OF TRAY.  
(HOBBIES No. 6224).



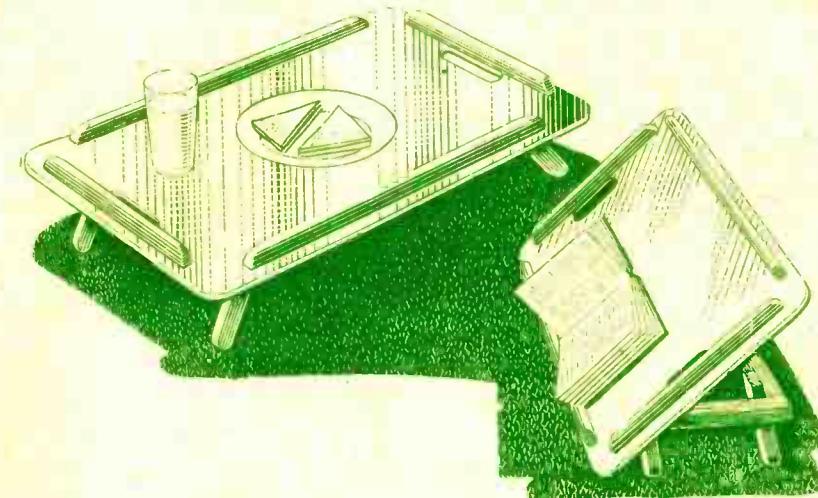
SIZE - 24 ins.  
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DESIGN

No.  
3174

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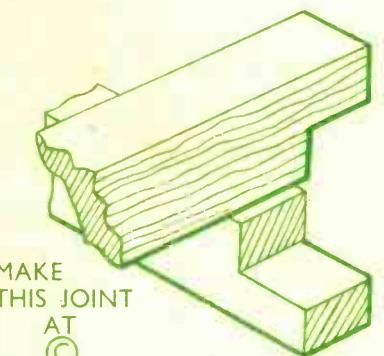
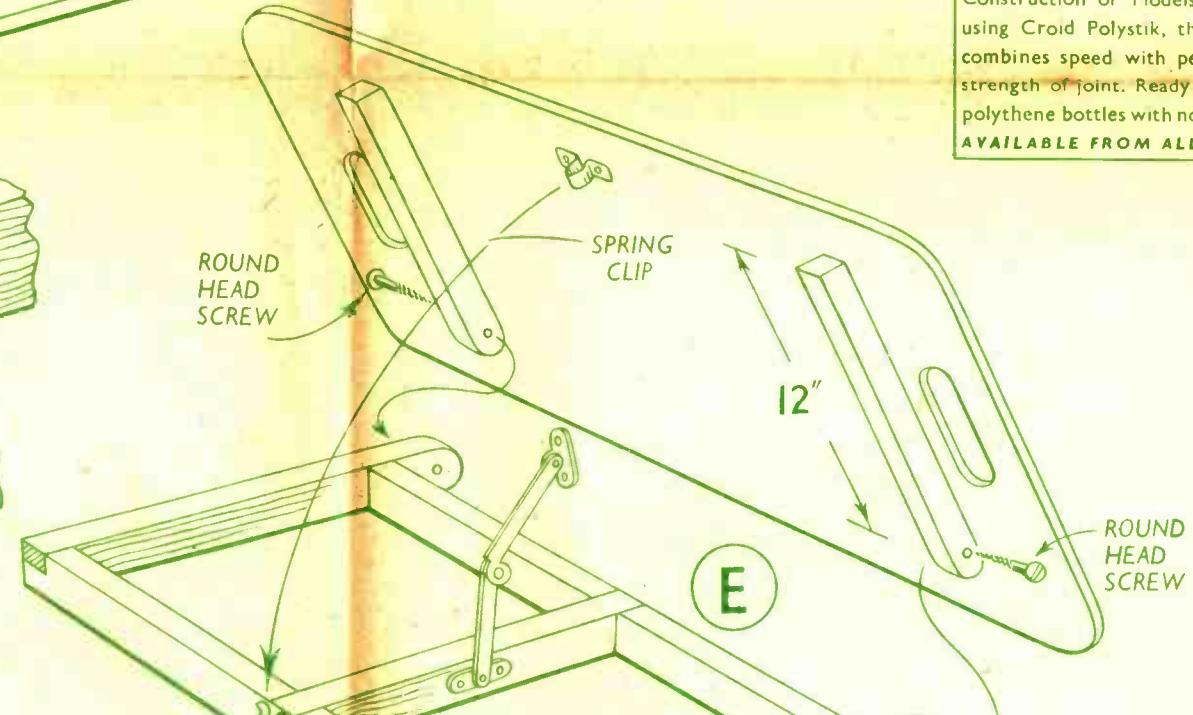
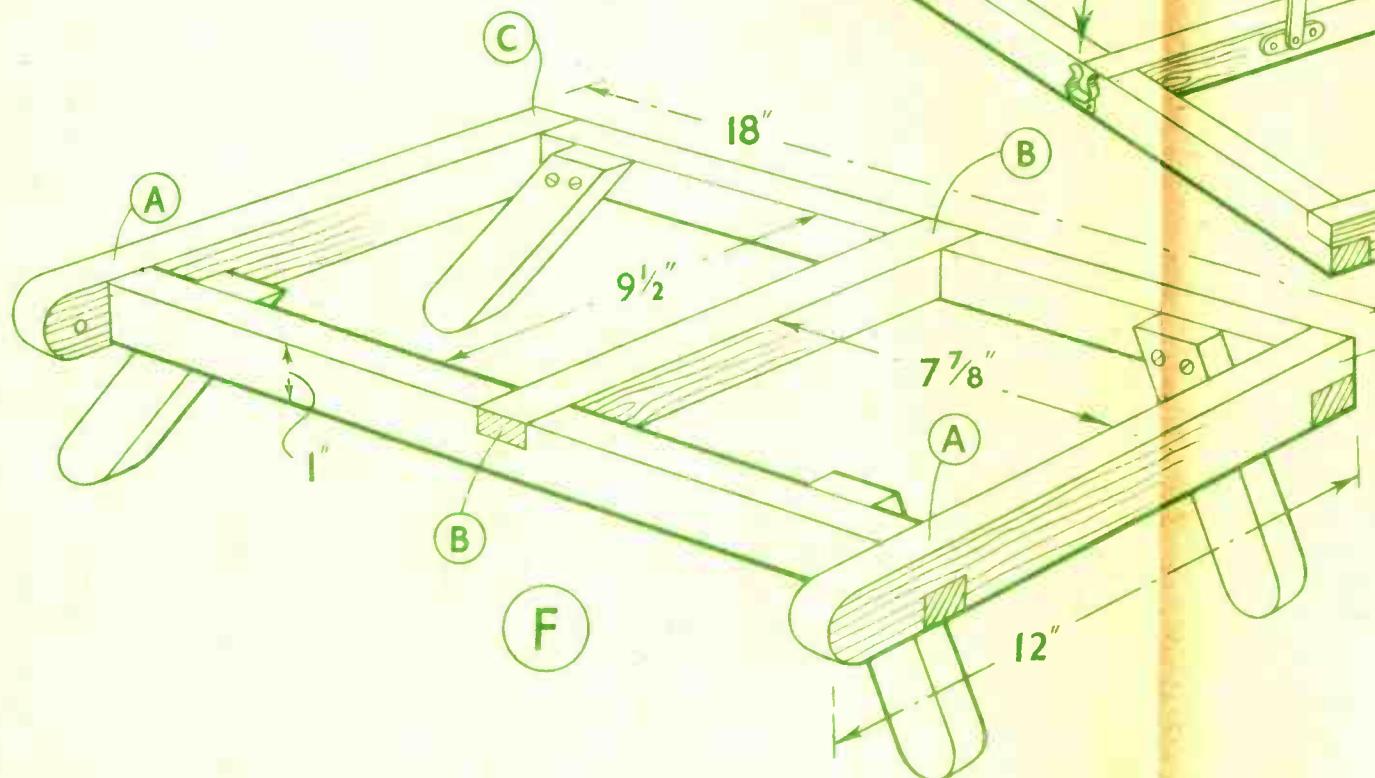
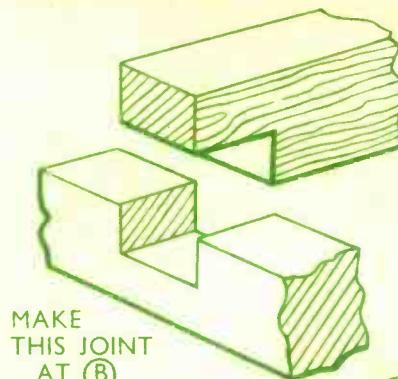
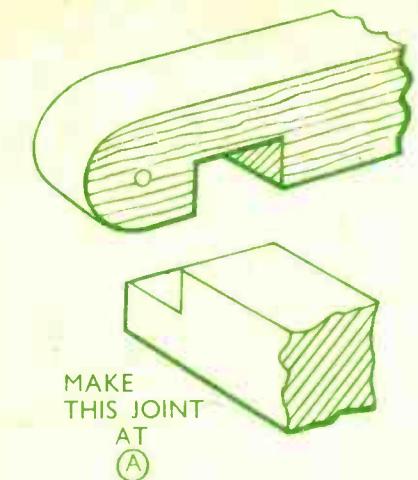
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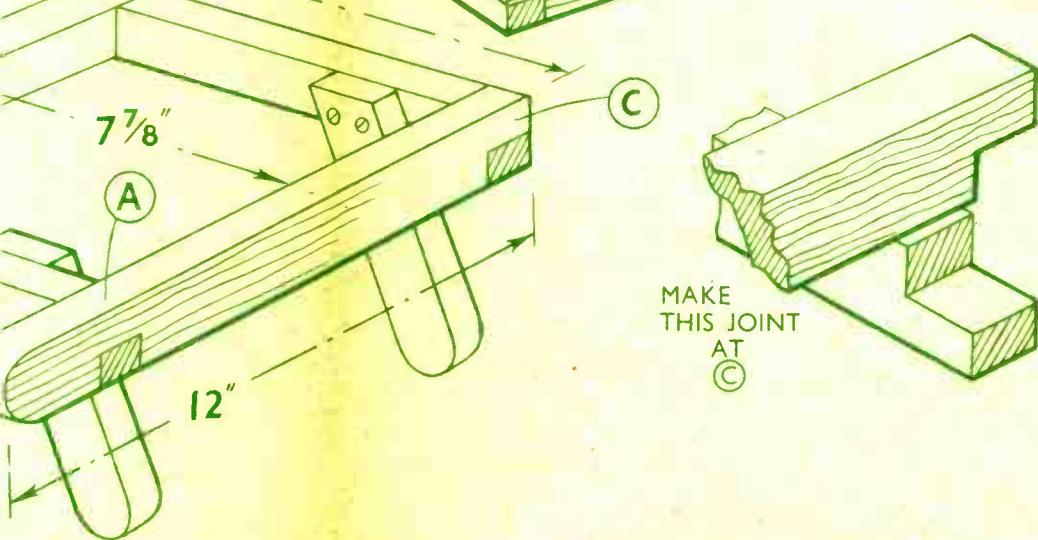
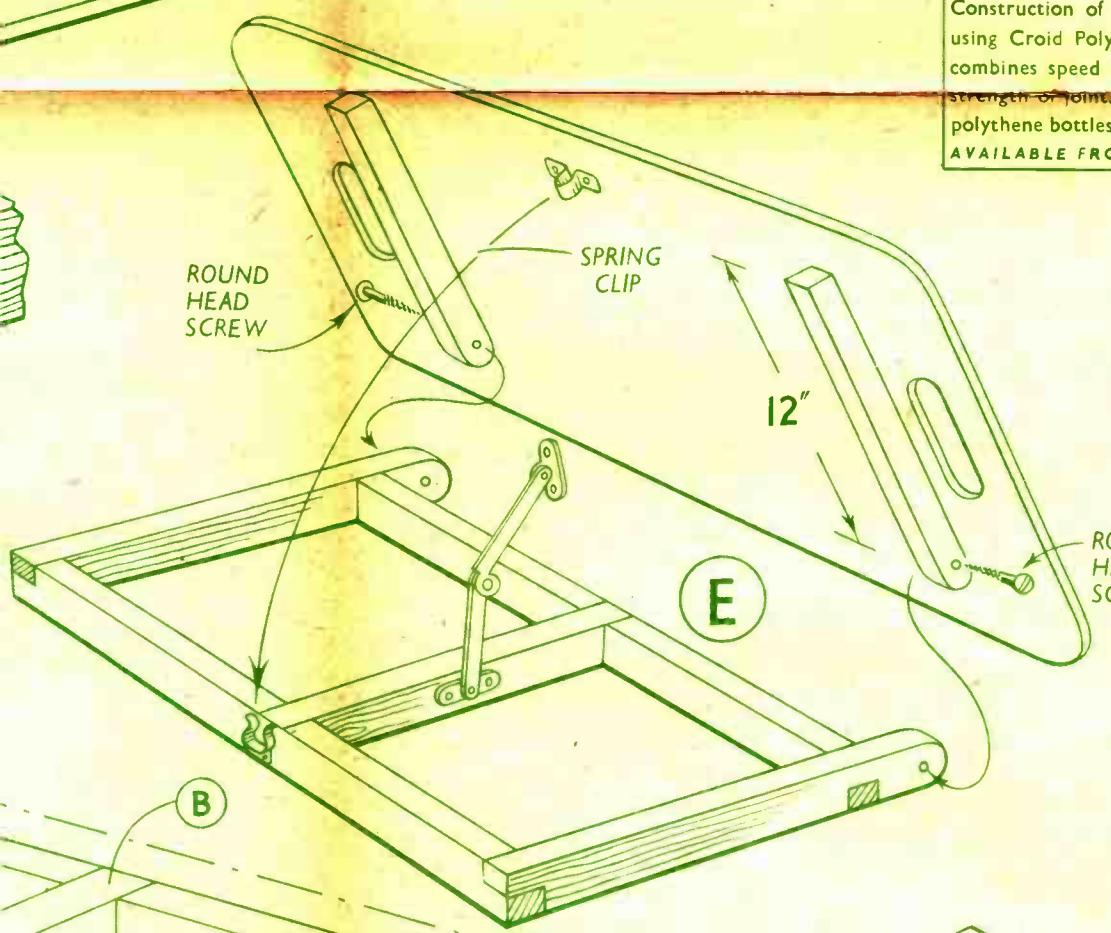
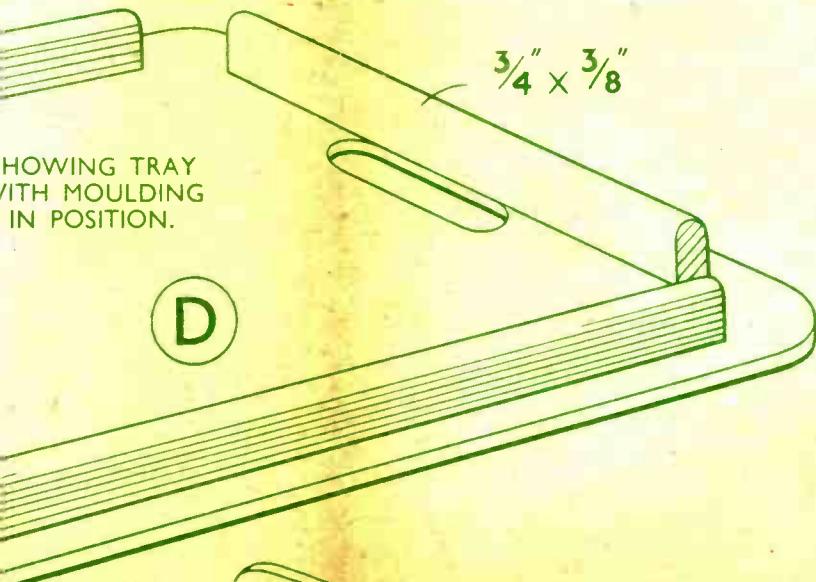
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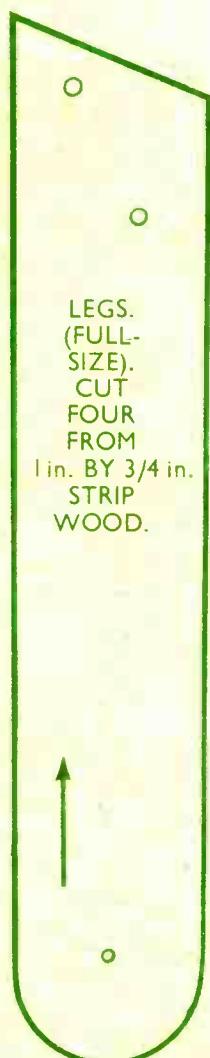


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